

Comprehensive Transportation Plan for Jamestown 2007

final report

prepared for

**Virginia Department of Rail and
Public Transportation**

prepared by

Cambridge Systematics, Inc.

with

BRW, Inc.
KFH Group
Carlton Abbot and Partners, PC

June 2001

final report

Comprehensive Transportation Plan for Jamestown 2007

prepared for

Virginia Department of Rail and Public Transportation

prepared by

Cambridge Systematics, Inc.
5225 Wisconsin Avenue, NW
Suite 409
Washington, DC 20015

June 2001

Table of Contents

1.0 Recommendations	1-1
1.1 Introduction.....	1-1
1.2 Description of Transportation Plan Elements	1-3
1.3 Planning and Organizational Recommendations.....	1-18
1.4 Estimated Costs	1-22
1.5 Next Steps	1-25
2.0 Jamestown 2007 Events	2-1
2.1 Introduction.....	2-1
2.2 Description of Potential 2007 Events	2-2
3.0 Organization	3-1
3.1 Introduction.....	3-1
3.2 Current Structure.....	3-1
3.3 Current Activities	3-2
3.4 Recommendations	3-6
4.0 Case Studies	4-1
4.1 Introduction.....	4-1
4.2 OpSail 2000 Case Study	4-1
4.3 Salt Lake 2002 Case Study	4-5
5.0 Visitor Profile	5-1
5.1 Introduction.....	5-1
5.2 Historical Visitation Trends	5-1
5.3 Future Visitation Projections.....	5-16
6.0 Transportation Inventory	6-1
6.1 Highway	6-1
6.2 Local Bus Transit	6-6
6.3 Parking	6-20
6.4 Passenger Rail Services in the Historic Triangle Area	6-24
6.5 Airport Facilities Assessment	6-25
6.6 Jamestown 2007 Bikeways	6-38
6.7 Bus Operations Planning.....	6-43

Table of Contents

(continued)

7.0 Traffic Conditions	7-1
7.1 Background	7-2
7.2 Analysis of Current Conditions.....	7-4
7.3 Future Traffic Conditions	7-7
7.4 Conclusions	7-16

Appendix A

Jamestown 2007 Steering Committee Members

Appendix B

Jamestown 2007 Subcommittee Members

Appendix C

Membership of the Logistics Subcommittee's Local/
Regional Transportation Working Group

List of Tables

1.1	Vehicle Requirements – Jamestown 2007 Peak Event Bus System Transit Routes (30,000-person event).....	1-13
1.2	Estimated Costs for Jamestown 2007: Year-Long/Small Event Transportation System.....	1-22
1.3	Estimated Costs for Jamestown 2007 Transportation System: Three Major Events.....	1-23
1.4	Estimated Costs for Jamestown 2007 Transportation System: Three Mid-Sized Events.....	1-23
1.5	Estimated Costs for Jamestown 2007 Transportation System: Summary	1-24
1.6	Estimated Costs for Jamestown 2007 Transportation System: Summary by Year	1-24
2.1	Summary of 350th Anniversary Major Activities and Events.....	2-3
2.2	Summary of Proposed 400th Anniversary Major Activities and Events	2-10
5.1	Historical Paid Visitation at Jamestown Settlement and Yorktown Victory Center	5-3
5.2	Historical Paid Visitation at Colonial Williamsburg	5-5
5.3	Historical Visitation at Colonial National Historical Park, 1955-2000	5-8
5.4	Monthly Variation in Visitation at Colonial NHP Visitor Centers, 1995-2000.....	5-12
5.5	Monthly Visitation – Colonial Williamsburg Foundation and Virginia Tourism Commission Survey.....	5-13
5.6	Historical Bus Utilization, 1997-1999	5-14
5.7	Projected “Base” Visitation Levels at Colonial NHP, 2001-2020	5-18
5.8	Projected “Base” Visitation at Colonial Williamsburg, Jamestown Settlement, and Yorktown Victory Center	5-21
5.9	Comparison of Visitation Projections for Jamestown Settlement	5-22

List of Tables (continued)

6.1	Summary of Local Private Bus Operators	6-16
6.2	Local Private Operator Characteristics	6-17
6.3	Summary of Current Transit Resources	6-20
6.4	Existing Bicycle Facilities in Historic Triangle Area	6-39
7.1	Conceptual Event Traffic Impact – Parking and Transit Requirements for Various Mode Shares	7-3
7.2	Percentage Growth in Average Daily Traffic on Selected Roads – James City County, 1998-2000.....	7-6
7.3	February 2001 Capacity Analysis of SR31/SR199 Intersection	7-7
7.4	Estimated 2006 Levels of Service on Selected Roadway Segments	7-8
7.5	Capacity Analysis of SR31/SR199 Intersection, February 2007	7-9
7.6	Starting Assumptions Used in Jamestown 2007 Traffic Analysis.....	7-10
7.7	Baseline Traffic Conditions	7-11
7.8	Traffic Generated by Average Increases in Visitation at Jamestown Settlement...	7-11
7.9	Summary of Commemorative Event Transportation Analysis.....	7-13
7.10	Estimated Bus Requirements for Major Events	7-15
7.11	Assumptions Used in Transit Analysis	7-15

List of Figures

1.1	Transportation Recommendations for Major Events.....	1-10
1.2	Transportation Recommendations for Mid-Sized Events.....	1-16
4.1	Regional Transportation System for 2002 Winter Olympics	4-7
4.2	Locations of Olympic Venues	4-8
5.1	Annual Paid Visitation at Jamestown Settlement 1957-2000	5-4
5.2	Annual Paid Visitation at Yorktown Victory Center 1976-2000.....	5-4
5.3	Annual Paid Visitation at Colonial Williamsburg 1966-2000	5-6
5.4	Annual Visitation at Yorktown Battlefield 1955-2000	5-9
5.5	Annual Visitation at Jamestown Island 1955-2000.....	5-9
5.6	Origin of Pleasure Trips to Williamsburg Area.....	5-16
6.1	Historic Triangle Area.....	6-2
6.2	Recommendations, James City County Long-Range Transit Plan	6-9
6.3	Existing, Programmed, and Proposed Bike Routes	6-41
7.1	Percentage Change in Traffic Volumes, 1991-1997	7-5

1.0 Recommendations

■ 1.1 Introduction

Jamestown 2007 is planned to be a collection of more than 100 events, major and small, that will commemorate the establishment of the first permanent English settlement in North America on the shores of the James River in 1607. These events are anticipated to take place between the fall of 2006 and the spring of 2008 across the Commonwealth of Virginia. The vast majority of these activities are likely to be relatively small in size and localized in scope. Most events that are planned to take place in the Historic Triangle (Jamestown-Williamsburg-Yorktown) area will likely create somewhat busier than average peak visitation levels. The following pages present a description of the recommendations to serve the transportation and logistics needs of these events.

This plan anticipates that there will be approximately three major events, and that these will take place at separate times during the spring and fall of 2007. It has been further assumed that these major events will take place only on weekends, one on May 13, 2007, and the other two between May and October 2007. These events are assumed to draw approximately 30,000 spectators each to either Jamestown Island, managed cooperatively by the National Park Service (NPS) and the Association for the Preservation of Virginia Antiquities (APVA), or the nearby Jamestown Settlement, which is managed by the Commonwealth of Virginia's Jamestown-Yorktown Foundation.

Currently, event planners expect that a number of mid-sized and small events will occur throughout the commemorative year on Park Service or Jamestown-Yorktown Foundation property. The timing and magnitude of these events has yet to be determined. This plan distinguishes between *mid-sized* events, which may attract 4,000 to 13,000 people, and *small* events, which may attract up to 4,000 visitors.

The recommendations presented here provide order-of-magnitude estimates of the infrastructure and services required to serve the transportation demands generated by the commemorative events planned for 2007 at the Island and the Settlement. These concepts can be used as the basis for more detailed operational studies, feasibility assessments, and cost estimates that will follow this study.

These recommendations are based on a review of existing traffic data, supplemented by capacity analyses of roadways leading to the venue areas. The recommendations are also based on the conservative assumption that the events will occur with a definite start and end time, which will create a peak-of-traffic demand one hour before and one hour after most events. Our analysis indicates that the roadway system leading to the Island/Settlement area has sufficient capacity to accommodate an event attracting up to roughly 13,000 visitors, under existing patterns of automobile and transit use. In order to accommodate events attracting more than 4,000 visitors, however, additional parking near

the commemorative sites must be provided, and a significant proportion of the visitors must use tour buses and shuttle buses to arrive at the commemorative venues. Events attracting more than 13,000 visitors will require more aggressive measures to avoid significant delays to visitors arriving and departing the site.

The actions recommended here are intended to ensure that visitors to the Historic Triangle area in 2007 enjoy their stay and have a memorable experience. The quadricentennial commemoration, Jamestown 2007, offers an opportunity to leave a lasting impression of the greater Jamestown area as a “must-visit” attraction and strengthen the region’s position as one of the premier tourist destinations in the nation. It also presents a unique opportunity to establish a legacy of good planning and travel demand management.

Background

The recommendations presented in this plan reflect careful consideration of the opportunities and challenges presented by the existing transportation system. These issues and opportunities are described below.

Highway Capacity

In general, there appears to be ample highway access leading to the Historic Triangle area. Several parallel routes such as I-64 and U.S. Route 60 follow the northwest-southeast orientation of the peninsula. Additional regional access routes include U.S. Route 17, U.S. Route 258, and U.S. Route 460. Within the immediate area, State Route 199 and the Colonial Parkway are partially access-controlled and provide the fastest access to points south beyond Williamsburg.

However, access to Jamestown Island itself and the nearby Jamestown Settlement is limited to only a few two-lane roadways – State Route 5, State Route 31, and the Colonial Parkway. No significant roadway capacity improvements are currently planned for these facilities. Moreover, there is not enough time to undertake the detailed planning, design, environmental analyses, capital programming, right-of-way acquisition, and construction that would be necessary to upgrade these access routes prior to 2007. And while intersection improvements are planned for the intersection of Route 199 and SR31, significant peak hour congestion is likely to occur simply because of regional background traffic growth.

Limited-Venue Parking Capacity

Both Jamestown Settlement and the Jamestown Island Visitor Center plan to reconfigure and augment their existing parking facilities over the next three to five years. However, even with these improvements, it is expected that a total of only about 1,200 permanent and temporary parking spaces may be available at these locations in 2007. This is a small fraction of the approximately 10,000 parking spaces that would be needed, for example, to accommodate a 30,000-person event, if an average of three persons per vehicle was assumed for those persons projected to arrive by automobile.

There is an inadequate supply of on-site parking to accommodate the projected demands of a major event if even a sizable minority of visitors arrive by automobile. In order to accommodate the transportation demands of any major event, it will be necessary to intercept the vast majority of arriving visitors some distance from the event venues and accommodate their access to Jamestown Island and/or Jamestown Settlement by some form of public transportation service.

Based on currently available information about parking resources at the Island/Settlement, enough parking is available to accommodate most of the automobile demand generated by events attracting up to 4,000 visitors at any one time. Events attracting more than 4,000 persons will require additional parking space. Public and privately-owned vacant and redevelopable parcels in the immediate vicinity of the event areas, if available for use, could supply the additional land.

Separation of Local and Visitor Traffic

The surface street system in the city of Williamsburg, especially along routes leading to or from the Colonial Williamsburg area, is difficult to negotiate for visitors new to the area. Short city blocks with many decision points, confusing/inadequate signage on curvilinear arterial streets and high numbers of pedestrian/vehicle conflicts in the core area all contribute to this difficulty. In order to maximize safety, and reduce congestion for local traffic during the peak event periods, reducing visitors' reliance on auto travel for internal circulation is highly desirable. For these same reasons, intercepting visitor traffic as soon as possible once it has arrived in the Historic Triangle area is highly desirable.

The recommendations in this plan reflect the following objectives:

1. Minimize the congestion impacts of the anticipated events on the regional highway system;
2. Maximize the convenience, safety, and reliability of alternative transportation services for a relaxed and pleasurable visitor experience; and
3. Minimize impacts to the local community by physically separating visitor from local traffic as much as possible.

■ 1.2 Description of Transportation Plan Elements

The following pages describe the principal elements of the recommended Jamestown 2007 Transportation Plan. Section 1.3 presents the organizational and management recommendations associated with the implementation of the transportation plan, while Section 1.4 presents preliminary cost estimates of the transportation plan elements. Finally, Section 1.5 presents an outline of the next steps required in the detailed event and venue planning process.

The recommended transportation plan consists of the following basic elements:

- Highway Improvements;
- Park-and-Ride Facilities;
- Local Transit and Ferry Services; and
- Intercity Transit Services.

Transportation recommendations for the year-long commemoration are described first, followed by recommendations for major, mid-sized, and small events. Major events are described as those attracting between 13,000 and 30,000 visitors, mid-sized events between 4,000 and 13,000 visitors, and small events are those attracting fewer than 4,000 visitors.

Recommendations – Background Transportation System

Highway Recommendations

The highway recommendations are relatively modest, and do not anticipate that any significant roadway capacity improvements beyond those currently programmed to be implemented by 2006 will be available to support the Jamestown 2007 commemorative activities.

I-64

Current plans by VDOT propose the widening of I-64 over the next three to four years from two lanes in each direction to four lanes in each direction from the James City County/city of Williamsburg line south through the city of Newport News. Conversely, no widening is currently programmed for I-64 from Richmond south into James City County by 2007. A still unresolved design issue for the portions of I-64 to the north and south of Williamsburg is the debate over the potential use of the median area for the construction of the additional travel lanes. With respect to I-64, the Jamestown 2007 Transportation Plan recommends the following actions:

- Do not continue the widening and reconstruction of I-64 south of Williamsburg beyond the Mercury Boulevard interchange if additional sections cannot be completed prior to 2007.
- If construction is ongoing by 2007, remove all barriers and construction equipment, and halt construction operations to eliminate safety hazards and unnecessary capacity restrictions on I-64.
- Continue with detailed planning and design studies for the widening of the section of I-64 from the Williamsburg area north to I-295 in Richmond, but do not initiate construction in this area until after 2007. Given the likelihood of significantly increased visitation to the area in 2007, the presence of major construction activities could contribute to congestion and delay in the corridor.

U.S. Route 17 and U.S. Route 60

Relatively modest improvements to these corridors are anticipated over the next five to seven years. For the most part, these proposals consist of intersection upgrades in the city of Williamsburg and adjacent areas of James City and York Counties. These improvements should be implemented with all deliberate speed to ensure that construction is completed prior to 2007.

State Route 199

State Route 199 is an integral component of the Jamestown 2007 transportation system. For this system, the roadway functions as a bypass route around downtown Williamsburg that can facilitate the separation of local and visitor traffic. Current plans call for the widening of the existing two-lane sections of Route 199 to a four-lane cross section from the Colonial Parkway to the U.S. Route 60/Route 199 interchange on the south side over the next two to three years.

Considerable debate has followed proposals to improve the intersection of State Route 199 and State Route 31 (Jamestown Road). According to recent studies, proposed at-grade improvements would improve conditions temporarily, but fail to reduce congestion enough to prevent significant weekday queuing and delays by 2007. The Jamestown 2007 Transportation Plan recommendations for Route 199 are as follows:

- Ensure that the programmed roadway widening of SR199 is completed prior to 2007.
- Plan, design, and construct at-grade capacity improvements for the SR199/SR31 intersection by 2007. The James City County Board of Supervisors and Williamsburg City Council has approved a preferred design for this intersection. The Board and Council's position is that preliminary design should proceed quickly to allow for construction to move forward and be completed by 2007.

Transit Recommendations

The Jamestown-Yorktown Foundation anticipates nearly a doubling in the number of visitors who currently visit the Jamestown Settlement in 2007. There should be a higher than average level of visitation to all attractions in the Historic Triangle by 2007, and transit services should be increased to meet this demand.

Jamestown 400th Shuttle System

It is anticipated that there will be approximately 1,200 permanent and temporary parking spaces distributed across Jamestown Island, Neck of Land, the Jamestown Island Glass House, and the Jamestown Settlement for 2007. In order to use these resources, shuttle buses transporting visitors from their parking spaces to event venues will be necessary. The number, routing, and type of vehicles needed for the shuttle operations can be ascertained once parking designs for the Island and Settlement are finalized.

Colonial Parkway Shuttle

The Parkway shuttle would serve visitors at Colonial Williamsburg properties, and operate along the Parkway between Williamsburg, the Settlement, and Jamestown Island. Two or three permanent shuttles could provide adequate support for the generally higher levels of “everyday” visitation anticipated for 2007. The Jamestown-Yorktown Shuttle is mentioned both in the James City County Long-Range Plan and the National Park Service Alternative Transportation System (ATS) Plan. While the county plan recommends a total of three buses in operation by 2007, the ATS plan calls for seven buses, operating at up to 15-minute frequencies. Seven buses should suffice for background conditions and small events.

Route 60 Shuttles

The James City County Long-Range Plan calls for two separate routes operating along U.S. 60 by FY2003, one each on the north and south ends. These shuttles would effectively replace the “Relax and Ride” service. Between one and four buses would be operated in peak service at 15-minute frequencies. These buses would serve visitors staying at one of the hotels along this corridor, providing connections to the Parkway shuttle via the Colonial Williamsburg Visitor Center. An additional bus for each route would provide more capacity for the background influx of visitors anticipated in 2007 by increasing frequencies to 10 minutes or less during periods of peak demand, and provide bus operators with more flexibility to respond to unanticipated demands in that corridor or other corridors.

Transportation Center Shuttle

This service would serve visitors for charter buses and event-day train service arriving at the proposed city of Williamsburg Transportation Center. The frequency of service would conform to the bus and train arrival and departure schedule. This service would provide a direct, smooth connection between the intercity travel modes and the shuttle service. Under current assumptions, it is estimated that about five buses would be required for this service. It is currently anticipated that existing resources will suffice to meet background service needs.

Bus Management and Operation

Hampton Roads Transit (HRT) is the largest transit provider in the tidewater region. They have operated shuttle bus services for special events throughout the peninsula area for many years. During OpSail 2000, for example, HRT provided management and operations manpower for all of the shuttle bus services operating out of the park and ride lot locations throughout the five-city area. Their presence in the planning, management, and operation of peak event bus services for Jamestown 2007 would be a significant asset to the effort. Close coordination with James City Transit and Colonial Williamsburg, the two principal transit providers in the Williamsburg area, will be essential as well.

The James City County long-range transit plan calls for the creation of a new management transit authority and consolidated services to serve the growing mobility needs of the Historic Triangle area. That entity would be a logical source of coordination for the planning and operating bus service for Jamestown 2007.

- Consider leasing maintenance facility space and maintenance staff to service buses for Jamestown 2007 major events.

Automated bus dispatching and routing systems are on the horizon of the most forward-thinking transit systems in the world. Such systems, which have been implemented in Europe, promise a truly seamless, customer-focused transit system. These systems allow travelers to reserve a trip via computer with a single fare at a guaranteed time, much like a taxi trip, regardless of the number of transfers or transit agencies involved. Visitor travel is an ideal market for such a demand-responsive system. James City County and Hampton Roads Transit might consider initiating a study to assess the feasibility of such a system in advance of 2007.

Bus Maintenance

Colonial Williamsburg will have a new bus maintenance facility in place by 2007. This facility could be used to service Jamestown 2007 buses during the peak demand periods as well as throughout the year.

Fares

In order to maximize convenience and efficiency, no bus fares should be collected on board for peak event bus services. If the appropriate level of sponsorship, and possibly federal sponsorship, can be secured, providing these services free of charge would maximize ridership. If fares must be collected, bus pass sales kiosks should be established at convenient locations.

Ferry Service

VDOT operates regularly scheduled passenger and vehicle ferry service in the State Route 31 corridor across the James River between Scotland in Surry County and Jamestown. According to VDOT staff, up to four ferries can be operated simultaneously.

The Jamestown 2007 Transportation Plan recommends that this maximum potential level of service be operated during peak events. It is further recommended that an expanded park and ride facility be implemented in the Route 31 corridor between the town of Surry and the ferry landing at Scotland. During peak periods of demand, visitors will board shuttle buses that would transport them via the ferry to Jamestown, and then drop them off at either the Settlement or Jamestown Island. This service should remain free of charge as it is currently.

Parking

CW Visitor Center. The visitors' center parking lot at Colonial Williamsburg should be a transfer point for bus travel to Jamestown and Yorktown. This lot and the attendant CW Visitor Center, which is being expanded and reconfigured as part of a larger expansion effort by CW, will ultimately provide parking space for approximately 80 tour buses and 2,000 automobiles. The use of this lot as a park-and-ride/transfer point will provide the opportunity to operate a direct transit service connection between the two most popular visitor destinations in the historic triangle during the commemorative period. This facility will also be able to serve regional traffic that has not been intercepted at the I-64/Route 199 park and ride lots north and south of Williamsburg.

- Coordinate closely with Colonial Williamsburg to establish their willingness to assist in the provision of parking to serve mid-sized and major events for Jamestown 2007.

Parking for Local Residents. This plan recommends the establishment of several park and ride lots to serve visitors from outside the region, as well as local residents. Other locations conveniently accessible to the recommended shuttle services may be available as well, such as parking at commercial centers and public parks near Route 199.

- Establish convenient park and ride locations for local residents.

Bicycle Element

Biking is considered one of the many recreational pursuits to enjoy in the Historic Triangle and is a viable mode of transportation for William and Mary students. This plan recommends the completion of several critical links in the regional bikeway system plan:

- Complete the Capitol to Capitol bikeway, from the James River to Jamestown;
- Complete the Ironbound Road bikeway from Mid County Park to Clara Byrd Baker Elementary School; and
- Complete the Ironbound Road/Sandy Bay Road bikeway, from the Clara Byrd Baker Elementary School to SR31 (Jamestown Road).

Traveler Information

An important element of the overall visitor transportation plan for Jamestown 2007 is the provision of traveler information. A well-conceived traveler information "system" will provide clear, unified, and unambiguous information on available travel options before the trip is made and available route and modal options while travelers are en-route. This is an indispensable component of a pleasurable visitor "experience."

The Hampton Roads Smart Traffic Center uses a variety of video cameras and pavement sensors to monitor traffic speed and volume and to identify the location of accidents and other incidents resulting in congestion. The Hampton Roads regional Traffic Management System (TMS) is continuing to expand its area of coverage onto the Peninsula, with

additional static and variable message signs to be placed along the I-64 corridor over the next three to five years. The current Highway Advisory Radio message system will also be expanded in coming years.

Visitors' travel choices can be influenced before they depart for the Historic Triangle area, via radio, television, and the Internet. Once in the Historic Triangle, visitors can be informed of available transit services and parking resources.

- Install permanent and temporary variable message signs as appropriate to guide visitors to commemorative venues through routes least likely to adversely impact the local community and create unacceptable levels of congestion.
- Inform visitors of their travel options, and about travel restrictions and recommended routes, through an information campaign, using electronic and other media. This should include a single source of web-based information for travel to and around the Jamestown area.
- Develop a traveler information plan, detailing how visitors will receive information about travel options before they depart for their visit to the Historic Triangle, and detailing how they will receive information once they arrive in the area.

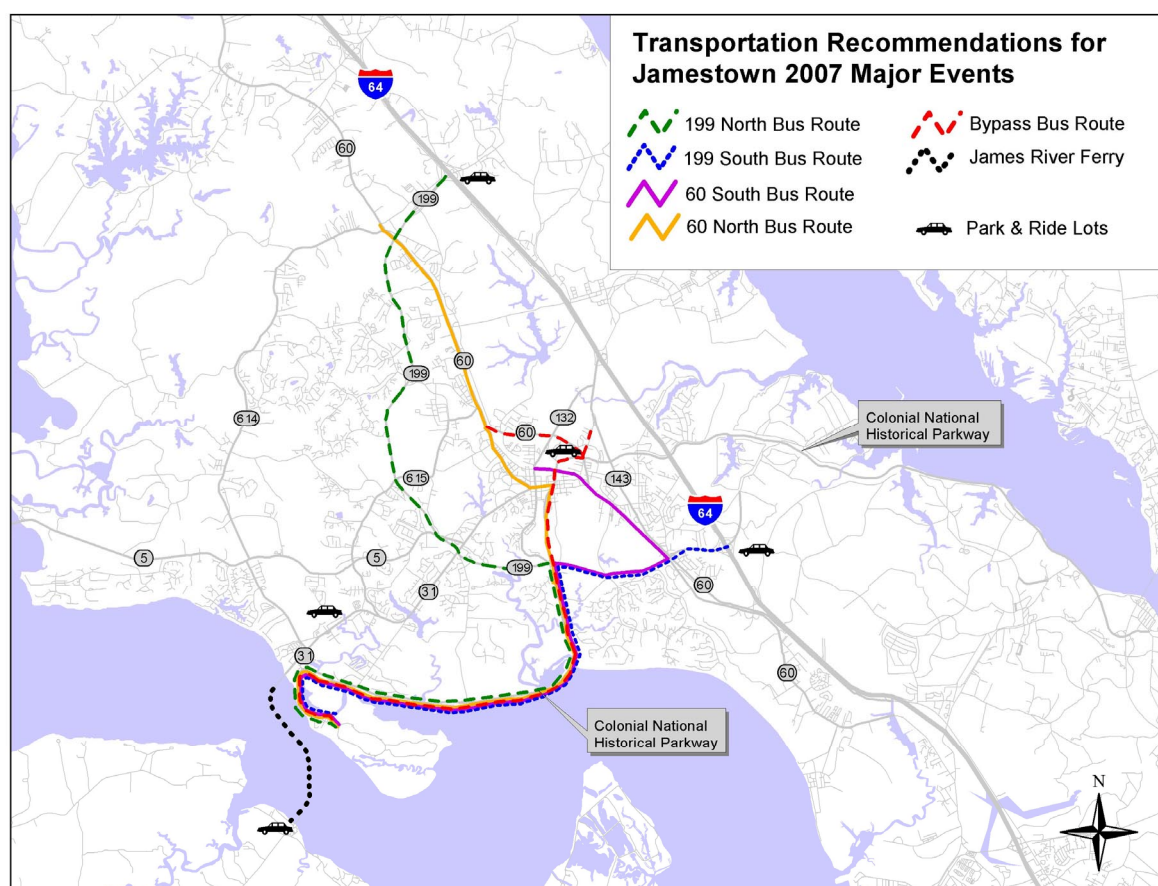
Recommendations – Major Events

Major events attracting between 13,000 and 30,000 (or more) people will place significant demands on the transportation system. There is insufficient highway capacity to allow all visitors to arrive by automobile. The principal recommendations for major events are to:

1. Restrict auto access to the Island/Settlement;
2. Establish a system of hotel shuttle buses and intercept park and ride services to transport visitors to the venue locations; and
3. Establish regional intercept park-and-ride lots linked to Jamestown Island and the Jamestown Settlement by a group of high-frequency shuttle bus services.

Figure 1.1 depicts the principal transportation recommendations to accommodate the visitor travel demands associated with major events at Jamestown Island and the Jamestown Settlement. As shown on Figure 1.1, these proposed transportation elements are very similar in general concept to the successful visitor transportation program operated during the OpSail 2000 visit to the Hampton Roads region in June 2000.

Figure 1.1 Transportation Recommendations for Major Events



Colonial Parkway

The Jamestown 2007 Transportation Plan recommends dedicating Colonial Parkway as a **bus only** facility during the major events at Jamestown Island and the Jamestown Settlement. This will minimize potential conflicts between automobile and bus movements, and maximize the efficient operation of the shuttle bus services. This recommendation will require the consent of the NPS for this designation, and a detailed operational analysis for implementation.

Parking

This plan proposes the establishment of several large, temporary parking lots at each of the SR199/I-64 interchanges. Under current assumptions for a 30,000-person attendance, major event, there appears to be sufficient demand for approximately 2,000 parking spaces at each location. It is anticipated that the majority of the visitors not using the intercept park and ride lots would depart from hotels in the vicinity, or use the Colonial Parkway shuttle from Colonial Williamsburg Visitor Center.

SR199/I-64 North. There is an existing VDOT operated park and ride lot near the Route 199/Route 60 interchange, which can accommodate approximately 100 vehicles. Additional parking space could be established through a leasing agreement on unused farmland near the existing park and ride lot. Other opportunities should be explored as well, such as the use of existing lots on commercial developments in the area or the Bruton High School property near the I-64/Route 199 interchange and the York River State Park.

SR199/I-64 South. The Virginia Department of Transportation owns approximately 40 acres of land once used as a roadway construction “borrow pit” near the interchange. At a minimum, this land would require grading and surfacing for use as a park and ride lot for use during peak events and/or throughout the year. This land should be evaluated for its suitability as a park and ride lot from an engineering and environmental perspective.

Other possibilities, such as the temporary use of parking lots on commercial land in this area such as the Busch Industrial Park, the Busch Gardens Amusement Park, and Water Country USA, should be examined as well. These parking facilities may be available during fall and early spring weekends, but would not likely be available for use during summer months.

Jamestown Settlement/Jamestown Island. This plan further recommends *limiting automobile parking to VIP and emergency vehicles at the Settlement and on Jamestown Island during peak events*. This will help to minimize roadway congestion and ensure the most efficient use of available roadway capacity through effectively dedicating the roadway space to bus service.

Transit Services

This plan recommends a system of shuttle buses and park and ride buses to serve the peak event demands in May and October 2007. These services would operate at high frequencies during the three hours leading up to and following the events, and at reduced frequencies during off-peak periods. All buses in this plan would operate as express buses on the Colonial Parkway after picking up their passengers. These routes are designed so that passengers reach the Settlement and Island as conveniently as possible, requiring no transfers and a minimum of walking and waiting time.

For major events with high-frequency bus services, establishing a safe and efficient staging area at the Settlement for drop-off and pick-up of passengers will be difficult. This is because of the limited space available to allow large numbers of buses to stack behind one another as passengers load and unload. *Further study will be required to determine the optimal configuration for bus staging at the Settlement.* A configuration that allows buses to complete their movements in one continuous circuit on and off of the Colonial Parkway is preferable to one that does not.

The recommended drop-off and pick-up point for the shuttle buses serving activities on Jamestown Island proper would be the reconfigured parking area for the NPS visitor center. A secondary pick-up/drop-off point for these buses could be the proposed Neck of Land parking area that would be located in the vicinity of the existing NPS maintenance facility.

The individual elements of the shuttle bus system plan are as follows:

Williamsburg Area Hotel Shuttles

The three hotel corridor shuttles would operate as a “super” Relax and Ride service during major events. Regularly scheduled service would operate in the off-peak hours.

- *Route 60 North.* This shuttle operates from Williamsburg Pottery to Jamestown via U.S. Route 60 and the Colonial Parkway. Roughly 30 buses would circulate on this route in the peak hours. This service would serve approximately 3,000 hotel rooms along this corridor.
- *Route 60 South.* This shuttle operates from the vicinity of SR31/Lafayette Street to Kingsmill and the Colonial Parkway. Based on current assumptions, 28 buses would circulate on this route in the peak hour. This service would serve approximately 2,200 hotel rooms along this corridor.
- *Bypass Road.* This shuttle would circulate between Capital Landing Road and Merrimac Trail to the Colonial Parkway, and serve approximately 2,900 hotel rooms. The total number of buses needed for this route under current assumptions is 25.

Park and Ride Shuttle

- Two express bus routes would operate from the proposed park and ride lots to be located at the north and south interchanges of Route 199 and I-64. These buses would carry their passengers in closed door service from Route 199 to the Colonial Parkway, and then via the Parkway to the Settlement and Jamestown Island. Under current assumptions, the northern and southern routes would require approximately 50 and 60 buses, respectively.

Regional Bus Services

- Regional express shuttle bus service would provide convenient connections between the Richmond and Norfolk areas and the Historic Triangle area. These buses would make connections with the park and ride shuttles, and operate at a frequency of approximately once every 20 minutes in the peak hour. Assuming an approximate two-hour round trip time from Richmond to Williamsburg and from Norfolk to Williamsburg, approximately six buses would be required for each of these two regional service routes. These buses would serve residents as well as large groups of visitors, such as the National Association of County Officials, which has already made hotel reservations in Richmond for 2007.

Summary of Peak Vehicle Requirements

Table 1.1 presents a summary of the peak vehicle requirements associated with the recommended Jamestown 2007 major event transit services.

**Table 1.1 Vehicle Requirements – Jamestown 2007 Peak Event Bus System
Transit Routes (30,000-person event)**

Route	Description	No. of Peak Buses
Hotel Corridor North	Direct service from northern end of U.S. 60 north to Jamestown Island via Colonial Parkway	35
Hotel Corridor South	Direct service from southern end of U.S. 60 corridor to Jamestown Island via Colonial Parkway	30
Hotel Corridor Bypass Road	Direct service from Bypass Road corridor to Jamestown Island via Colonial Parkway	30
Rt. 199 Connector North	Direct service to Jamestown Island from temporary Park and Ride lot near existing lot at Rochambeau Blvd.	55
Rt. 199 Connector South	Direct service to Jamestown Island from temporary Park and Ride lot near existing lot at Rochambeau Blvd.	65
CW-Jamestown Connector	Colonial Williamsburg to Jamestown Island	15
Regional Bus Services	Richmond to Colonial Williamsburg	6
	Norfolk to Colonial Williamsburg	6
Transportation Center Shuttle	City of Williamsburg Transportation to Jamestown Island and Jamestown Settlement	8
Total Peak Hour Vehicle Requirement		250

Bus Procurement

Given the assumption that 95 percent of all major event visitors will need to be transported by bus, it is estimated that up to 250 buses may be required to accommodate the peak demand at the major Jamestown 2007 events. Our preliminary survey of regional transit resources in the corridor between Richmond and Hampton Roads indicates that a sufficient number of buses should be available for leasing from local public and private sources if mutually acceptable terms on bus leasing can be crafted. However, this conclusion that sufficient resources should be available is predicated upon the assumption that all peak events will take place on weekends when normal bus services are curtailed and maximum spare capacity is available. If any major events are scheduled during weekdays in the spring or fall months, it may be very difficult, if not impossible, to obtain the required number of buses from the adjacent region.

Passenger Rail Service

Hampton Roads Transit has recently completed a Major Investment Study (MIS) for the CSX rail corridor from Newport News to Williamsburg, and will shortly be initiating a formal preliminary engineering/draft environmental impact statement (PE/DEIS) study of this corridor.

The Jamestown 2007 Transportation Plan supports the CSX corridor study and the concept of providing passenger rail service between the Newport News area of Hampton Roads and Williamsburg. It is unlikely that this study and the subsequent preliminary engineering, final design, construction, and capital procurement, activities could be completed in time for a light rail transit line to serve Jamestown 2007.

Expanded intercity passenger rail service along *existing rail lines* should be included in the overall transit service plan for 2007. This service should include:

- Increased frequencies on the Washington to Richmond service;
- Increased frequencies for service from Richmond to Williamsburg; and
- Increased service frequency for rail service from Newport News to Williamsburg.

Past studies have indicated that frequencies as high as eight trains per day are possible on additional trackage. The tracks between Washington and Williamsburg, and beyond to Newport News, are shared by Amtrak and CSX freight operations. In order to attain higher service frequencies for passenger service, some CSX freight service may require rescheduling.

- Consultation with CSX and AMTRAK should commence as soon as possible to ascertain the feasibility of providing an increased frequency of passenger service.

Description of Transportation Plan Elements – Mid-Sized Events

Events attracting between 4,000 and 13,000 persons may not require the high degree of transit service nor the proscription against auto access to the Island and Settlement required of major events. Demands on the highway system leading to the event venues and parking demands will be considerably less. The plan for mid-sized events retains ample transit services, but anticipates that some or most visitors will arrive by automobile.

The mid-sized events are likely to occur during all times of the year. Therefore, the recommendations for mid-sized events recognize that if events occur on weekdays or during the school year, fewer public agency buses will be available for leasing. The events are also equally likely to be planned as “peak” events with a definite start and end point as they are to be a continuous set of activities spread throughout the day. These recommendations assume that a “peak” event will create the greatest transportation system demands just before and after the event takes place.

To serve the transportation needs of a mid-sized event, this plan recommends:

1. The development of additional temporary parking spaces near the Island/Settlement area;
2. A traveler information “system” that guides visitors to the Island away from the Route 31/199 intersection; and
3. A local and regional shuttle bus system operating at low to moderate frequencies.

These recommendations are shown in Figure 1.2 and are described below. For clarity, the shuttle buses depicted in the major event figure are not included, but are recommended as part of the plan.

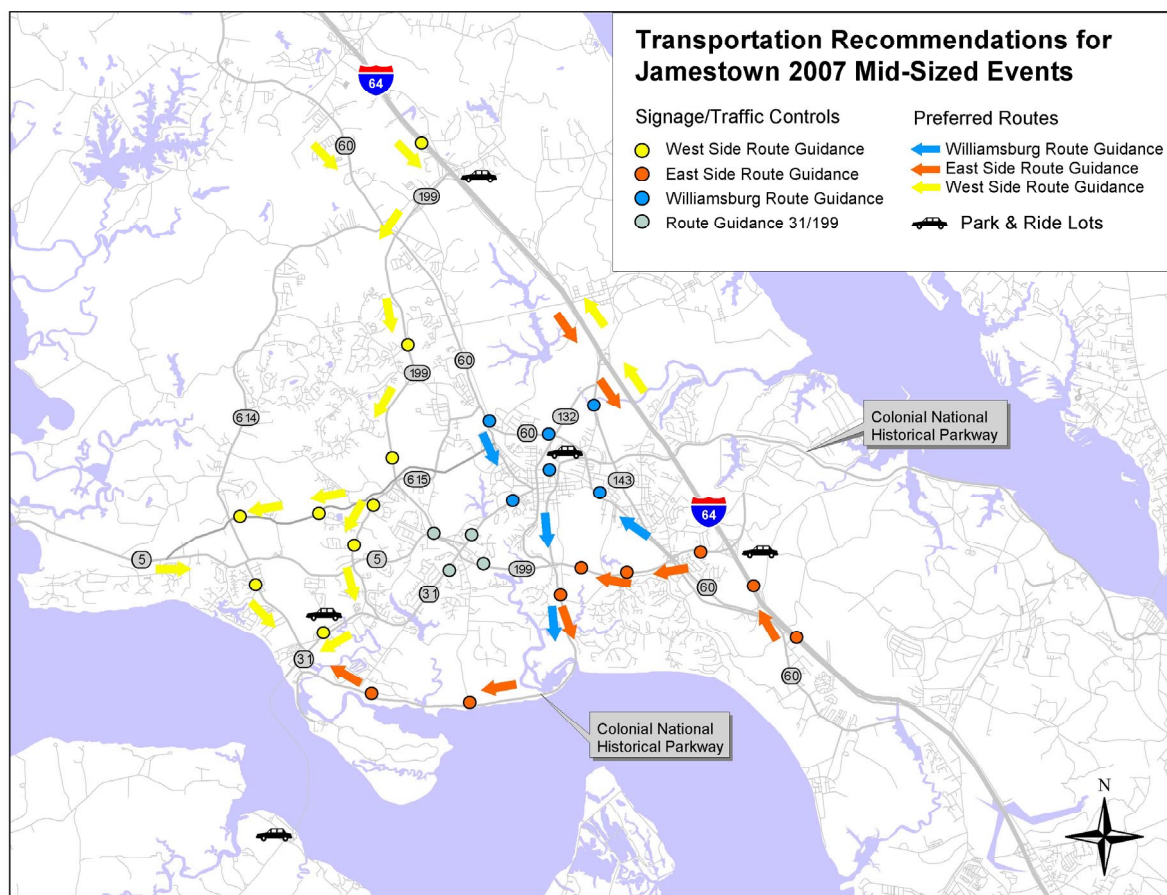
Highway Recommendations

Auto access to the Island and Settlement for mid-sized events can be accomplished through careful management of vehicular circulation in the area. One objective of these highway recommendations is to limit the congestion impacts of these events to Jamestown Road and the Jamestown Road/SR199 intersection. This requires the deployment of a traveler information “system” to encourage visitors to use designated alternative routes. The degree of “management” required depends on the size of the event. Events at the smaller end of the (mid-sized) spectrum will not require the routing of all traffic away from Jamestown Road, while traffic for major events should be managed more aggressively.

The preferred alternative routes are:

- Guide eastbound visitors on I-64 to exit at Route 199, and proceed to the Monticello Avenue interchange. After exiting at westbound Monticello Avenue, visitors would be directed to Greensprings Road via a short segment of Route 5 or to Jamestown Road (Route 31) via Ironbound Road (Route 615) and Sandy Bay Road (Route 681). The Sandy Bay Road route may be preferable to the Monticello/Greensprings Road route because it is more direct and presents fewer potential traffic conflicts for travelers.
- Guide eastbound visitors on Route 5 to Greensprings Road and the additional parking facilities located on public or private property near the event venues.
- Direct westbound visitors on I-64 to the Island/Settlement area via the Route 199 east interchange, and the Colonial National Historical Parkway.
- Route westbound visitors on U.S. Route 60, SR143, and other routes east of Jamestown Road and within the city of Williamsburg to the Island/Settlement via the Colonial National Historical Parkway.
- Restrict through movements at the Route 199/31 intersection from the north to local traffic.

Figure 1.2 Transportation Recommendations for Mid-Sized Events



Parking

Current plans call for the Settlement and National Park Service Properties to provide roughly 1,200 permanent and temporary automobile parking spaces for all events. Currently, the National Park Service is considering options for a reconfigured Visitor Center at Jamestown Island. Included in that study is a consideration of parking needs. One option calls for parking spaces to be constructed at the Island Visitor Center, Glasshouse Point and Neck of Land. The Jamestown-Yorktown Foundation is also reconfiguring its parking lot to increase safety and operational efficiency.

In order to serve peak parking needs generated by events attracting more than 4,000 persons, space for additional parking must be created, if auto access is to be permitted. Assuming that 25 percent of visitors arrive by bus, a 13,000-person event would require 2,050 additional parking spaces. There are several private and public land parcels in the immediate vicinity that could be used for parking on a temporary basis. Land that is currently used for farming would need to be protected against soil compaction. In Salt Lake

City, the topsoil from fields used as temporary parking lots will be scraped away and replaced with gravel. At the conclusion of the Winter Olympics, the gravel will be hauled away, and the topsoil returned in its place.

- Initiate a search for land that can be used for overflow parking to serve parking demands for small and mid-sized events during 2007. Mainland Farm, a large parcel of actively-farmed land in close proximity to the Settlement, should be investigated for its suitability as temporary parking site. Other privately-owned parcels in the vicinity should be explored as well.
- Investigate the suitability of the Jamestown High and Clara Byrd Baker Elementary School parking lots for temporary parking during the summer season and on week-ends. Both these sites are relatively close to the Settlement/Island area. The high school and elementary school have 402 and 100 parking spaces, respectively.

Transit Recommendations

For the mid-sized events a system of shuttle buses will be required to transport visitors from most of the available parking spaces to the commemorative event venues. Additionally, the interior shuttle services recommended for the major events should be provided for the mid-sized events, but at relatively low frequencies.

- Provide buses to shuttle visitors between interior parking lots and event venues. Interior parking locations may include the Jamestown Island Visitor Center, Neck of Land, Glasshouse, the Jamestown Settlement and additional parking facilities whose locations are to be determined. These buses would operate on a continual basis before and after the events and at less regular intervals during the events.
- Provide shuttle bus service from the Hotel Corridors and the Williamsburg Visitor Center and the Williamsburg train station. The frequency of service depends on the specifics of the event, but may range from five to 20 minutes.
- Serve larger events in this range (10,000 to 13,000 persons) with the hotel and park and ride intercept shuttle system described for major events. Buses running at 15-minute frequencies should provide adequate service.

Recommendations – Small Events

Events attracting not more than 4,000 people will create relatively minor impacts to the Historic Triangle's transportation system if demands are properly managed. Small events are defined as those requiring few if any additional parking resources other than those currently planned for the venues. While the provision of the intercept park and ride lots and their shuttle services would be beneficial, they are not necessary to avoid excessive congestion, unless other significant events in the immediate area coincide with these small events.

This plan recommends the following transportation actions for these events:

1. Develop a route guidance and signage system that encourages visitors to circumvent the Route 31/199 intersection. To the east, Route 199 and the Colonial Parkway should be the preferred means of access. To the west, Monticello Avenue, Ironbound, and Sandy Bay Roads should be the primary access routes to the venues.
2. Implement and operate the Colonial Parkway shuttle bus service at 15-minute intervals between Colonial Williamsburg, Jamestown, and Yorktown.
3. Implement and operate expanded service on U.S. 60 north/south at 10- to 15-minute intervals or less during periods of peak demand. Provide an additional two buses over anticipated levels.
4. Develop a ferry park and ride lot in Surry County as conveniently located as possible.

■ 1.3 Planning and Organizational Recommendations

Event Planning

The time required to implement a transportation service, operational improvement or capacity enhancement can be significant. Extensive coordination with partner agencies, the state legislature, and the public is required. More detailed planning, including venue access and traffic and bus operations planning will be necessary. Leasing agreements for buses and parking lots must be arranged. Some construction will be required for parking lots that now occupy vacant land.

Until the events themselves have been finalized, the transportation plan recommendations and associated funding requests described in this document can only reflect an approximation based on the informed opinions of the Jamestown-Yorktown Foundation and others responsible for planning the commemoration. However, because the major events produce impacts that will severely tax the Historic Triangle's transportation system, even a small change in dates, duration, or location will have a major effect on the resources needed (or ability) to provide a well-functioning transportation system.

With this in mind, the following recommendations related to event planning needs should receive immediate attention:

- Establish, with reasonable certainty, the times, dates, locations, activities, and expected attendance levels of all major events for the Jamestown 2007 commemoration by the end of 2002.
- Schedule major events on non-holiday weekends during the spring and fall months to the maximum degree possible.

Advance ticketing for events reduces the uncertainties of crowd and traffic management, and presents valuable marketing opportunities. Advance ticketing provides information on party size and point of origin, which in turn indicates, with some certainty, the location and magnitude of transportation demands. A request for a ticket automatically presents the opportunity to provide information on lodging, transportation alternatives, and other points of interest in the region, which could generate advertising revenues. Moreover, an Internet-based reservations system would reduce transaction costs and provide a very effective means of communicating travel options to prospective visitors.

Joint-ticketing arrangements could be developed between Colonial Williamsburg, the Jamestown Settlement, and the National Park Service as the brokers for package deals including lodging and passes to other regional attractions and the Williamsburg Hotel-Motel Association. These tickets could be obtained through use of the Jamestown 2007, Jamestown-Yorktown Foundation, Colonial Williamsburg, and Colonial National Historical Park web sites, by phone, or by mail.

Thus, an early action event planning activity is to:

- Develop and implement an advance-ticketing program for all major events (preferably an Internet-based system); and
- Develop joint ticketing programs for 2007 special events, combining transportation, lodging, and passes to other regional attractions.

Organizational Structure

The transportation service and event planning activities outlined above will not appear of their own accord. A broadly based planning and implementation process will need to be continued from this date through the completion of the 400th anniversary commemorative activities. To ensure that these technical recommendations are successfully implemented, the establishment of a multilevel planning structure is proposed.

Transportation Coordinator

As planning moves to implementation, transportation logistics and operations should be managed through a single point of coordination. This “point of coordination” could be a single individual, or a small number of individuals, with responsibility for managing the day-to-day transportation needs and operations of Jamestown 2007. Specific responsibilities could include managing the field operations of buses on event days, coordinating emergency and security activities, and overseeing leasing arrangements with bus operators or land holders.

Small Working Groups

The recommendations presented require more in-depth analysis and coordination to support the more detailed budget and staffing requests they will generate. We recommend that the members of the Transportation Logistics Working Group and others nominated

by the group continue to work with the consultant team on the following components of the Jamestown 2007 transportation system. These elements should be considered not only in the context of major event planning as they have here but, just as importantly, in the context of the hundreds of small events that are anticipated to occur throughout the Commonwealth between 2006 and 2007:

- Park and Ride/Park and Walk Lots;
- Local and Intercity Bus and Rail Transit;
- Intelligent Transportation Systems (ITS) and Visitor Information Systems;
- Traffic Control and Operations;
- Transportation Demand Management; and
- Venues and Events Operations.

Transportation Policy Group

In addition to attending to day-to-day technical planning activities, important policy and funding issues will arise. Consideration could be given to the establishment of a Transportation Policy Group that would oversee the activities of the members of the Transportation Logistics Working Group.

The proposed membership of the Transportation Policy Group is as follows:

- The Commissioner of the Virginia Department of Transportation;
- The Director of the Virginia Department of Rail and Public Transportation;
- The Superintendent of the Virginia State Police;
- The Executive Director of the Jamestown-Yorktown Foundation;
- The Superintendent of Colonial National Historical Park;
- The Executive Director of the Association for the Preservation of Virginia Antiquities;
- The Manager of the James City County Transit System;
- The Executive Director, Williamsburg Area Convention and Visitors Bureau;
- The Executive Director of Hampton Roads Transit;
- The Mayor of the city of Williamsburg; and
- The Chairmen of the Boards of Supervisors for James City County and York County.

These individuals, or their designees, would be authorized and directed to provide policy direction for all of the transportation planning and operational aspects of the Jamestown 2007 Commemoration.

- Close coordination and cooperation will also be necessary between the participants on the various transportation sub-working groups and representatives of the recently

established Federal Jamestown 2007 Commemoration Commission. To the degree that permanent and/or temporary staff are assigned to the Federal Commission, they should be considered for representation on the Jamestown 2007 Transportation Working Group, and perhaps even on the Jamestown 2007 Transportation Policy Group.

An important rationale for the Transportation Policy Group and their staffs is to provide continuity of purpose and vision through the political cycles that lie ahead. This is uniquely important in the Commonwealth of Virginia, where the constitutional limitation on gubernatorial succession means that the decisions made by Governor James Gilmore and the Governor elected in November 2001 will set the framework for the actions to be taken by the Governor elected in November 2005. It is this latter Governor whose legacy will be defined by the success of Jamestown 2007.

The principal responsibilities of the Transportation Policy Group will be to ensure that high-level policy and financial decisions are made when they are necessary in order to ensure the success of the transportation elements of Jamestown 2007. This will be particularly important during the two to three years prior to 2007 when the final capital and operating budgets for Jamestown 2007 are being established. If the necessary funds are not allocated at this time, the potential exists for serious mobility problems to be encountered, particularly during the most heavily attended, high-profile events associated with Jamestown 2007.

The members of the Transportation Policy Group will need to maintain close and continuous coordination with the federal, state, and local agencies responsible for the actual implementation and operation of the Jamestown 2007 transportation plan. This will primarily include the Virginia Department of Transportation and the Department of Rail and Public Transportation, the local public transit agencies in the Hampton Roads region, and state and local law enforcement agencies. As was the case in 1957, close ties will also be needed between the Transportation Policy Group and the recently established Jamestown 400th Anniversary Federal Commission and representatives of the U.S. Department of Defense. This coordination function will take place primarily through regularly scheduled meetings of the Transportation Policy Group.

The timing of the meetings of the Transportation Policy Group will vary over time. Initially, during the period 2001-2003, the group will probably need to meet no more frequently than once every four to six months to receive updates from DRPT and VDOT staff on the status of the planning activities. As more detailed project implementation and funding decisions need to be made in 2004 and 2005, the group will probably need to meet on a regular twice-monthly basis. As initial elements of the strategic transportation plan begin to come on line in 2006 and final operational planning takes place, the group will need to meet monthly. During 2007, the frequency of meetings may need to increase to once every two weeks. This would allow for real-time reporting of operational issues and concerns to be presented, with necessary corrective actions identified and implemented as quickly as possible.

At the conclusion of the 400th Anniversary commemoration, the Transportation Policy Group might be assigned a final responsibility to produce what could be termed an "after action report." This would serve to document how well the implementation of the

strategic transportation plan accomplished its goals, identify any problems or issues that were observed and how they were addressed, and outline the protocols by which the transportation elements for the 450th Anniversary commemoration in 2057 might be formulated.

■ 1.4 Estimated Costs

Tables 1.2 to 1.5 present preliminary order-of-magnitude cost estimates for the Jamestown 2007 transportation system. Costs expected to be incurred over the course of the entire year, as well as costs for mid-sized and major events are included. The estimates for the mid-sized and major events assume three of each type of event over the course of the year. These estimates are subject to numerous uncertainties, the most important of which is the disposition of the events themselves. These estimates should thus be considered rough approximations only.

Cost estimates for year-long and small events are shown in Table 1.2. Included in these estimates are costs for the purchase of buses to operate the Colonial Parkway shuttle and expanded shuttle service on U.S. 60. Costs estimates for basic signage are included, as are costs for developing a parking facility near the ferry service in Surry County. Also shown is an estimate for transportation coordination and planning leading up to 2007.

The costs shown do **not** include the salaries and other associated costs for fire, police, and rescue support. Also not included are leasing costs for parking on undeveloped land.

Table 1.2 Estimated Costs for Jamestown 2007: Year-Long/Small Event Transportation System

Service	Description	Estimated Costs
Bus Purchase	Colonial Parkway Service (ATS study: seven buses)	\$2,415,000
	Route 60 Buses (two additional)	\$580,000
Bus Operations	Colonial Parkway Services	\$945,600
	Route 60 Services	\$270,200
Parking	Construction	\$366,800
	Leasing	N/A
	Portable Signs	\$378,800
Other	Planning/Coordination	\$1,200,000
TOTAL		\$6,156,400

Cost estimates for major events are shown in Table 1.3. These estimates describe the increment of funding needed over the basic services to serve major events, and include the cost of leasing and operating all shuttle buses on the Colonial Parkway and U.S. 60. Also included are construction costs for park and ride lots to serve the major events.

**Table 1.3 Estimated Costs for Jamestown 2007 Transportation System:
Three Major Events**

Service	Description	Estimated Costs
Bus Lease and Operations	All Routes	\$606,000
Bus Operations	Dispatch personnel and Supervisors	\$90,000
	Maintenance	\$5,000
Parking	Construction	\$1,200,000
Traffic Operations	Portable Signs	\$6,000
TOTAL		\$1,907,000

Cost estimates for mid-sized events are shown in Table 1.4. The cost estimates assume three relatively well attended events (13,000), and describe the increment of funding needed over the basic services to serve them. These estimates include the cost of leasing and operating all shuttle buses on the Colonial Parkway and U.S. 60.

**Table 1.4 Estimated Costs for Jamestown 2007 Transportation System:
Three Mid-Sized Events**

Service	Description	Estimated Capital and Operating Costs
Bus Lease and Operations	All routes	\$334,000
Bus Operations	Dispatch personnel and Supervisors	\$45,000
	Maintenance	\$3,000
Parking	Lease	\$30,000
	Construction	\$763,500
Other	Police/Fire Support	N/A
Traffic Operations	Portable Signs	\$6,000
TOTAL		\$1,181,500

All costs are combined in Table 1.5 below.

**Table 1.5 Estimated Costs for Jamestown 2007 Transportation System:
Summary**

Service	Year-Long	Mid-Sized	Major	Total
Bus Purchase	\$2,995,000			\$2,995,000
Bus Lease and Operations	\$1,215,800	\$382,000	\$701,000	\$2,298,800
Portable Signs	\$378,800	\$6,000	\$6,000	\$390,800
Parking	\$366,800	\$793,500	\$1,200,000	\$2,360,300
Planning and Coordination	\$1,200,000			\$1,200,000
TOTALS	\$6,156,400	\$1,181,500	\$1,907,000	\$9,244,900

Finally, Table 1.6 below presents the distribution of estimated costs by year. Capital expenditures for bus purchases corresponding to transportation plans for James City County and the Colonial Parkway begin in 2004. With the exception of funding for continued planning and coordination, most other costs are incurred in 2006 or 2007.

**Table 1.6 Estimated Costs for Jamestown 2007 Transportation System:
Summary by Year**

Service	2002	2003	2004	2005	2006	2007
Bus Purchase			\$580,000	\$1,500,000		\$915,000
Bus Lease and Operations					\$919,520	\$1,379,280
Portable Signs						\$390,800
Parking					\$2,360,300	
Planning and Coordination	\$250,000	\$250,000	\$250,000	\$250,000	\$250,000	\$450,000
TOTALS	\$250,000	\$250,000	\$830,000	\$1,750,000	\$3,529,820	\$3,135,080

■ 1.5 Next Steps

In order to successfully provide for the recommended elements of the Jamestown 2007 Transportation Plan, a number of additional plan refinement and detailing activities will need to be completed over the next several years. These include the following:

- Facilitate Transportation Logistics Working Group Meetings;
- Conduct continuing outreach meetings with potential Jamestown 2007 partners, including HRT, and HRPDC, and agencies responsible for traffic operations;
- Coordinate with Jamestown/Yorktown Foundation, NPS, and APVA to develop an event itinerary for Jamestown 2007;
- Develop initial operations plans for event and venue-specific transportation services;
- Develop a more detailed traffic operations/management plan for the overall Historic Triangle Area;
- Develop a traveler information and regional visitor information plan;
- Develop detailed venue access plans for the Jamestown Settlement, Jamestown Island, and Yorktown Battlefield;
- Develop a detailed parking plan, particularly including the location and operation of regional park and ride lots;
- Develop detailed capital and operating cost estimates for 2007 transportation plan;
- Develop a detailed operations and circulation plan for the Island and the Settlement, potentially using simulation tools to develop bus staging plans, which should include a detailed analysis of the Parkway as a bus-only facility for major events;
- Develop a detailed traffic circulation plan to protect neighborhoods; and
- Initiate a detailed traffic analysis of the Route 60 Corridor.

2.0 Jamestown 2007 Events

■ 2.1 Introduction

As noted earlier, the detailed planning of the events associated with the 400th Anniversary of the establishment of Jamestown is at an early stage. While the Program and Events Committee of the Jamestown 2007 Steering Committee has identified approximately 100 separate events or other commemorative activities to date, these encompass an extremely diverse range of interests. Activities identified include everything from local and statewide educational programs to the installation of information kiosks at Virginia Welcome Centers and the commissioning of a fine art poster.

It is likely that the vast majority of these program proposals will have little, if any, transportation-related implications. Many of these events will not take place in the Jamestown-Williamsburg-Yorktown region. There are currently 100 event proposals, each of which fall under one of four programmatic categories: *Education*, *Statewide*, *National/International*, and *Publications*.

- **“Education.** Planned for citizens from all parts of Virginia and the United States, these programs promote a greater understanding of the significance and legacy of the founding of Jamestown. Phase one includes scholarly programs, conferences, and fellowships that will hopefully lead to new research and publications on 17th-century Virginia and its global context. Phase two includes programs for administrators, educators, and related organizations to develop, implement, and evaluate teacher institutes, outreach programs, lesson plans, and field trips to bring the lessons of Jamestown to students in grades kindergarten through 12.
- **“Statewide.** The purpose of the statewide program is to ensure that the observance in 2007 is one involving all Virginians in every corner of the state. Localities will be encouraged, through a number of existing and new resources, to develop programs that will become 400th Anniversary presents to their communities. These projects include, among other ideas, the creation of an historical society, cleaning up a waterfront area, upgrading visitor centers, and initiating new tourism products that highlight museums, libraries, and performing arts venues.
- **“National/International.** These programs and events recognize the need to disseminate the study of the founding of Jamestown into the global context of ‘Virginia in the Atlantic World, 1550-1650.’ This context recognizes the African, English, and Indian interrelationship at Jamestown settlement and the evolution of these cultures from 1607 to the present day. Proposals include major events and travel programs involving several countries around the world.

- **“Publications.** These programs and events encourage continued current research and creation of books, tapes, CD-ROMs, the Internet, and Virtual Reality. These programs will target audiences of different ages and educational experiences to make the experience fun and enlightening.”¹

As noted on the Jamestown 2007 web site, “At this time, sponsors and funding for programs are in the planning stages.” It can thus be expected that, as the details of these various programs become more defined, it will be necessary to assess the degree to which they have the potential to generate transportation demands on the Williamsburg area’s transportation system.

■ 2.2 Description of Potential 2007 Events

In the absence of a clearly defined list of events for Jamestown 2007, only a qualitative assessment of potential transportation impacts on the region can be made. However, the historical experience of the major visitor attraction venues in the region, combined with examination of the activities that took place during the 350th Anniversary in 1957 and more recent large-scale events in the region such as OpSail 2000, can be used to provide a reasonable order-of-magnitude understanding of what transportation conditions may be like during 2007. In particular, the magnitude and temporal distribution of the events that took place during the 350th Anniversary commemoration in 1957 are anticipated to be quite representative of what will be experienced during the 400th Anniversary in 2007.

Table 2.1 presents a summary of the major activities and events that took place between February 1956 and November 1957 in connection with the 350th Anniversary commemoration. The information in this table was summarized from the discussion contained in the Final Report of the Jamestown-Williamsburg-Yorktown Celebration Commission. A brief description of these events is presented below.

The 350th Anniversary commemoration actually began in early 1956, with the laying of the keel for the reproduction of the *Susan Constant* at West Norfolk, Virginia on March 17th before an invited audience of approximately 300 persons. Other preliminary activities took place throughout the remainder of 1956. These were capped by the formal christening of the Three Ships at West Norfolk on December 20th before an estimated crowd of 2,000 persons.

The major elements of the 350th Anniversary began in the spring of 1957, with the formal opening of the 350th Anniversary Festival from March 30 to April 1. Major events during this period included the dedication of the National Park Service’s Yorktown and Jamestown Visitor Centers, the Colonial Williamsburg Information Center, and the official opening of the Colonial Parkway linking Jamestown, Williamsburg, and Yorktown.

¹“Countdown to 2007 – What is Planned for 2007?” Jamestown 2007 Organization web site: http://www.jamestown2007.org/what_is_planned/updates_proposals.shtml.

Table 2.1 Summary of 350th Anniversary Major Activities and Events

Day/Date	Event	Estimated Attendance	Comments
1956			
February	Federal Commission recommends creation of coordinating committee		
March 17	Laying of the keel for the Susan Constant at West Norfolk, Virginia	300	(by invitation only)
May	Appointment of Dr. W. Melville Jones of the College of William and Mary as Director of Program Planning by State Commission		
June 15	Dr. Jones joined staff of State Commission		
June	Meeting with Armed Forces representatives at the Pentagon		
September 29 to November 4	Goodwill tour to Europe by 115 prominent Virginians		
December 20	Christening of the Three Ships at West Norfolk	2,000	
December 20	Ceremony commemorating the departure of the colonists held in Blackwell, England		
1957			
March 22 to 24	Visit of the Three Ships to Washington, D.C.	500,000 to 750,000	
March 30 to April 1	Formal Opening of 350th Anniversary Festival		
Saturday, March 30	Dedication of Yorktown Visitor Center		
Sunday, March 31	Dedication of Williamsburg Information Center, Reconstructed Glasshouse, and Jamestown Visitor Center		
Monday, April 1	Dedication of Jamestown Festival Park; Festival officially opened		
April 5	Dedication of Colonial Parkway and opening to public		
April 13	Anniversary of the marriage of John Rolfe and Pocahontas in 1614 at Jamestown Church		
April 20	Society of the Colonial Dames of the Seventeenth Century		
April 26 to 29	Civic Organizations Day honoring several national leaders of civic clubs		
	Commemoration of 350th anniversary of colonists' landing on American shores at Cape Henry; three-day event		
April 26	Outdoor drama at Seashore State Park; Three Ships sailed offshore		
April 27	City of Norfolk 4th Annual International Azalea Court		

Note: All events at Jamestown Festival Park unless otherwise noted.

Table 2.1 Summary of 350th Anniversary Major Activities and Events (continued)

Day/Date	Event	Estimated Attendance	Comments
April 28	Order of Cape Henry 1607 sponsored program of worship		
April 29	APVA dedication of Memorial Cross on Jamestown Island Restored Adam Thoroughgood House first opened to visitors		
April 30	Old Point Comfort celebration; commemoration of arrival of the colonists off Old Point Comfort Address by Mr. Charles Wilson, Secretary of Defense Sailing of the Three Ships, accompanied by U.S. Navy vessels and U.S. Air Force flyover and exhibition		
May 1	Hampton Day; colonists arrival at Kecoughtan		
May 2	Newport News Day; commemoration of colonists' arrival at Point Hope Presentation of plans of early American and British ships by British Admiralty to the Mariners' Museum Dinner at the James River Country Club honoring the Earl and Countess De La Warr		
May 10	Huguenot Society of the Founders of Manakin in the Colony of Virginia		
May 11	The Jamestown Society (of descendants of the earliest settlers)		
May 11 to 16	Royal Navy Frigate H.M.S. Bigbury Bay anchored in James River at Jamestown		
May 13	Jamestown Day Vice President Nixon represented President Eisenhower Transatlantic flight of U.S. Air Force planes completed as ceremony begun Multiple-event program at Park and Colonial Williamsburg	5,000	
May 17	National Society of Colonial Dames of America in the Commonwealth of Virginia and Society of Colonial Wars in the Commonwealth of Virginia		
May 18	Rededication of Old St. Luke's Church, restored, at Smithfield, Virginia		
May 18	Virginia State Chamber of Commerce Day offering tour to leaders of organization		
May 18 to 20	Tour of members of American Institute of Architects on post-convention tour		
May 23	The Order of the First Families of Virginia, 1607-1620, and National Society, Daughters of the Barons of Runnymede Visit of Medical College of Virginia alumni as part of college commencement		
May 29	Visit of members of American Institute of Bankers, in convention in Richmond		
May 30	Presentation of American Flag to Festival Park by Chickahominy Indians		

Note: All events at Jamestown Festival Park unless otherwise noted.

Table 2.1 Summary of 350th Anniversary Major Activities and Events (continued)

Day/Date	Event	Estimated Attendance	Comments
June 2	“First Ladies’ Day” honoring Martha Washington at St. Peter’s Church, New Kent County		
June 9 to 16	Visit by Goodwill Mission from Bermuda, second oldest English-speaking colony in the New World		
June 8 to 17	International Naval Review in Hampton Roads 17 foreign navies represented by 114 vessels Multiple-site program of entertainment by all communities in and around Hampton Roads		
June 10	Commemorative three-cent stamp issued to honor the International Naval Review and the Jamestown Anniversary		
June 14	Great Bridge Chapter, Daughters of the American Revolution Virginia Daughters of the American Revolution		
June 16	Royal Dominion Celebration to commemorate Virginia’s becoming a crown colony after dissolution of the Virginia Company of London in 1624		
June 16	Celebration of the 350th Anniversary of the first recorded Holy Communion at Jamestown		
June 22 to 26	National Governor’s Conference meeting at Phi Beta Kappa Memorial Auditorium in Williamsburg		Planned event that was cancelled
June 28	Presentation of glass plaque to Festival Park by Pilkington Glass Company of Great Britain and Canada		
June 29	Virginia Society, Children of the American Revolution		
July 5 to 24	Visit by Boy Scouts on their way to and from National Jamboree at Valley Forge	1,500	
July 19	Visit of Virginia Press Association during Diamond Jubilee Convention at Williamsburg		
July 22 to August 12	Nine events held at Jamestown Festival Park to honor all the counties of Virginia, grouped as Ruritan districts		
July 27	Area Boy Scout organization in ceremony at Jamestown honoring Chanco, Indian lad who saved Jamestown during massacre		
July 30	Commemoration of the meeting of the first legislative assembly in New World on July 30, 1618, at Jamestown Participation by representatives of U.S. Congress, British Parliament, and Virginia General Assembly		

Note: All events at Jamestown Festival Park unless otherwise noted.

Table 2.1 Summary of 350th Anniversary Major Activities and Events (continued)

Day/Date	Event	Estimated Attendance	Comments
August 2	Society of Friends service at Jamestown Church		
August 6 to 11	Attendance at Festival by the Lord Mayor of London and other distinguished Britons		
August 10 to 16	Visit by Canadian-Jamestown Quest of the Commonwealth Youth Movement (approximately 40 young men and women representing the countries of the British Commonwealth)		
August 11	Baptist church service at Jamestown		
August 24	Celebration of arrival of first Africans at Jamestown by the National Memorial to the Progress of the Colored Race in America		
August 30	Malayan Independence Day; placing of the coat of arms of the new member of the British Commonwealth in Old World Pavilion		
August 29 to 31	Annual Legislative Work Conference on Southern Regional Education; tour of Jamestown during meeting in Williamsburg		
September 4	Visit of U.S. Chamber of Commerce executives and board members		
September 7	Reunion of descendants of Edward Travis, who came to Jamestown in 1626		
September 8	Pilgrimage of the Greek Orthodox Church of America to Jamestown		
September 14	National Society of the Sons of the American Revolution		
September 21	Jamestown Day at the Virginia State Fair		
September 29	Ceremony of Polish Falcons of America honoring Poles who came to Jamestown in 1608 to make glass		
October 1	Launching of tanker christened Esso Jamestown at Newport News Shipbuilding & Dry Dock Company		
October 5	Virginia Polytechnic Institute Day at Jamestown Festival Park		
October 8	Visit of National Institute of Municipal Law Officers, in convention at Richmond		
October 16	Visit of Antique Automobile Club of America during its annual Glidden Tour		
October 16 to 17	Visit by Queen Elizabeth II and Prince Philip		
October 16	Arrival of Queen Elizabeth II and Prince Philip at Patrick Henry Airport		

Note: All events at Jamestown Festival Park unless otherwise noted.

Table 2.1 Summary of 350th Anniversary Major Activities and Events (continued)

Day/Date	Event	Estimated Attendance	Comments
October 16	Arrival of Queen Elizabeth II and Prince Philip at Jamestown Island Reception at College of William and Mary Dinner at restored Governor's Palace at Colonial Williamsburg Dinner at Williamsburg Inn	25,000 1,400 260	(by invitation only) (by invitation only)
October 17	Departure of Queen Elizabeth II and Prince Philip from Patrick Henry Airport		
October 18	Commemoration of the Siege and Victory at Yorktown Participation by Alexander Hamilton Bicentennial Commission Participation by Centennial Legion of Historic Commands Participation by Ancient Fife and Drum Corps Representatives from 11 of the 13 original states Open house by U.S. Navy vessels anchored in York River Maneuvers by historic commands and fife and drum corps, as well as a retreat parade Evening concert by U.S. Army Band and fireworks display National Society of the Daughters of the Founders and Patriots of America	Planned events that were cancelled	
October 19	Anniversary of Lord Cornwallis' surrender Morning ceremony at the Yorktown Victory Monument Afternoon ceremony including battle reenactment and other pageantry on the battlefield Descendants of the Signers of the Declaration of Independence	2,500 25,000 +	
October 20	De Grasse day at Norfolk Museum, with unveiling of statue "The Torchbearers"		
October 25	Service at Jamestown Church honoring donors to the church		
November 4	Visit of Council of the English-speaking Union of the United States, in session at Williamsburg		
November 8	Tour of Jamestown area by Southern States Cooperative members, meeting in Richmond		
November 10	Axacan Memorial Committee's ceremony commemorating the Spanish Jesuit missionary outpost near Jamestown in 1570		
November 11	Veterans' Day Memorial Services at Jamestown Church		
November 14	Visit of Council of Chief State School Officers, meeting in Williamsburg		
November 24	Review at Fort Meyer honoring services of 3rd Infantry Regiment at Jamestown		
November 30	Treaty of Paris Day: 175th Anniversary of the provisional pact ending Revolutionary War hostilities	Planned event that was cancelled	

Note: All events at Jamestown Festival Park unless otherwise noted.

A variety of activities took place over the following weeks, culminating in Jamestown Day on May 13th, when then Vice President Richard Nixon presided over ceremonies marking the arrival of the colonists at Jamestown Island in 1607. It was reported that approximately 5,000 persons attended this event. Interestingly, the most highly visited event associated with the 350th Anniversary took place not in the Jamestown area but in Washington, D.C., where an estimated 500,000 to 750,000 persons visited the Three Ships over the period of March 22 to 24 when they were docked at East Potomac Park.

Multiple events continued to take place throughout the spring, summer, and fall months of 1957. By far the largest of these was an International Naval Review in Hampton Roads during the period June 8 to 17, with participation by 114 vessels from 17 foreign navies and the U.S. Navy. All of the communities in and around the Hampton Roads region participated in a multiple-site program of entertainment during this period as well. Reports in *The Virginia-Pilot* newspaper estimated that more than a million persons either viewed the International Naval Review or attended one of the associated activities during this week.

Throughout the summer and fall months, small to mid-sized events continued to take place on a weekly basis. A number of regional and national organizations such as the Board of Directors of the U.S. Chamber of Commerce and the Antique Automobile Club of America visited the Jamestown area in connection with their national conventions.

The 350th Anniversary commemoration climaxed with the visit to Jamestown and Williamsburg by Queen Elizabeth II and Prince Philip on October 16 to 17. The Queen's visit to Jamestown Island and the Jamestown Festival Park (now the Jamestown Settlement) attracted a crowd estimated at approximately 25,000 persons. Based on available records, this appears to be the largest single one-day crowd that was observed at the Jamestown Settlement and Island during the 350th Anniversary. Several smaller, invitation-only activities in Williamsburg for Queen Elizabeth II reportedly attracted between 260 and 1,400 persons.

In the days immediately following the Queen's visit, several major events took place at Yorktown on October 18 to 19 to commemorate the siege by the U.S. Continental Army and its French allies of the British army commanded by Lord Cornwallis and the surrender of Cornwallis in 1781. It has been reported that upwards to 25,000 persons attended a reenactment on the Yorktown National Battlefield of the surrender of Lord Cornwallis to General George Washington on October 19, 1957.

From these twin peaks of activity at Jamestown and Yorktown, the 350th Anniversary commemorations rapidly declined in number and frequency through the month of November. A planned event on November 30th to mark the 175th Anniversary of the signing of the Treaty of Paris that ended Revolutionary War hostilities was actually cancelled.

A somewhat similar sequence of events to those observed in 1956-1957 is anticipated to take place during the commemoration of the 400th Anniversary of the establishment of Jamestown. Although plans by the Jamestown 2007 organizing committee contemplate a larger number of events taking place across the Commonwealth of Virginia, the Jamestown-Williamsburg-Yorktown area will still be the primary focal point of activity.

Through discussions with representatives of the Events Committee for Jamestown 2007, an initial list has been compiled of possible events. As shown on Table 2.2, these include:

- The Rechristening of the Three Ships;
- The Commemoration of the 400th Anniversary of the colonists' first landing on American shores at Cape Henry;
- The 400th Anniversary of the landing at Jamestown Island on May 13th;
- OpSail 2007 and an International Naval Review in Hampton Roads;
- An international conference of the leaders of the North Atlantic Treaty Organization (NATO);
- A Joint Session of the U.S. Congress and the British Parliament; and
- A visit to the Jamestown-Williamsburg area by members of the British Royal Family.

Many of these planned activities are very similar in character to those that took place in 1957, and indeed some, such as the proposed international naval review, have their antecedents in the 300th Anniversary in 1907. Although no formal estimates of anticipated attendance at these activities are yet available, a reasonable planning assumption is that the level of visitation at any particular event on any given day will be somewhat similar to those that were observed in 1957.

What might well be observed in 2007 could be a higher level of "background" visitation on top of what would otherwise be anticipated. For example, during the conduct of the Colonial National Historical Park Alternative Transportation System Feasibility Study, it was estimated that visitation during 2007 might be as much as 175 percent greater than what would be expected by an extrapolation of historical trends over the past 20 years.² Thus, for example, the average daily visitation at the NPS Jamestown Island Visitor Center of 1,000 to 1,500 persons per day that was observed during the peak visitation months in the summer of 1999 might increase from 1,700 to 3,000 persons per day during the summer months of 2007.

²Presentation to Colonial National Historical Park on Alternative Transportation System; presented by BRW, Inc. and Cambridge Systematics, Inc.; November 15 to 16, 2000.

Table 2.2 Summary of Proposed 400th Anniversary Major Activities and Events

Date	Event	Estimated Attendance	Location	Transportation Needs
2006				
July	Blockbuster Exhibit	1,000	Jamestown Settlement	Minor
October	Anniversary of Lord Cornwallis' surrender Tour of Virginia sites by a replica Jamestown ship to promote 2007 events; spring and fall 2006 Special exhibit on immigration at Yorktown Victory Center	25,000 +	Yorktown Battlefield	Significant
December	Ceremony commemorating the departure of the colonists held in Blackwell, England			None
2007				
	National business, cultural, religious, and governmental organizations to meet throughout 2007 at several Virginia sites			
January	Freedom of Religion*	1,000	Jamestown Settlement	Minor
February	African-American History Month*	1,000	Jamestown Island/Settlement	Minor
March	Women's History Month*	1,000	Jamestown Island/Settlement	Minor
April	Dedication of James River Monument Cultures of Virginia Month* Commemoration of 400th anniversary of colonists' landing on American shores at Cape Henry	500 1,000 5,000 to 10,000	Jamestown Island Jamestown Settlement Hampton Roads	Minor Minor Moderate
May	Jamestown Month* 13th: College of William and Mary Graduation 13th: Jamestown Day - First Landing Special exhibit on immigration opens at Yorktown Victory Center	10,000 30,000	Jamestown Island/Settlement	Significant
June	Virginia History Month* Commissioned Symphonic Work International Naval Review in Hampton Roads*	1,000 10,000	Jamestown Settlement Williamsburg	Minor Moderate
July	Celebration of Liberty Month* OpSail 2007 (Conference of Leaders from NATO Nations (or later)	1,000 1,000,000 + 10,000	Jamestown Settlement Hampton Roads	Minor Significant Moderate

* Potential event.

**Table 2.2 Summary of Proposed 400th Anniversary Major Activities and Events
(continued)**

Date	Event	Estimated Attendance	Location	Transportation Needs
August	Free Enterprise Month* National Association of Counties First Africans' Landing* Caribbean Nation Invitation Conference on Democracy Joint Session of U.S. Congress/British Parliament*	1,000 5,000 to 10,000 5,000 to 10,000 3,000 to 5,000 5,000 to 10,000	Jamestown Settlement Richmond Washington, D.C., or Virginia Jamestown Island/Settlement	Minor Minor Moderate
September	Military History Month*	1,000	Jamestown Settlement	Minor
October	Rule of Law Month* Major international leaders conference in Virginia* Arrival of British Royals at Jamestown Island (or earlier)	1,000 5,000 to 10,000 25,000	Jamestown Settlement Williamsburg Jamestown Island/Settlement	Minor Moderate Significant
November	American-Indian History Month* National Pow-Wow*	1,000 5,000 to 10,000	Jamestown Settlement Williamsburg	Minor Moderate
December	Salute to Noted Virginians Month*	1,000	Jamestown Settlement	Moderate

* Potential event.

3.0 Organization

■ 3.1 Introduction

A key element in helping to ensure the success of the Strategic Transportation Plan for the Jamestown 2007 Commemoration is the definition of an organizational structure responsible for the provision of the resources necessary to implement the recommended plan elements. This section presents an overview of the current Jamestown 2007 organizational structure, describes the current activities of this entity, and outlines a series of suggested adjustments to the current structure to be implemented over the next several years.

■ 3.2 Current Structure

The 1996 session of the Virginia General Assembly charged the Jamestown-Yorktown Foundation, the state agency that administers the Jamestown Settlement and the Yorktown Victory Center living history museums, with the responsibility for coordinating the Commonwealth of Virginia's role in the Jamestown quadricentennial. The Board of Trustees of the Jamestown-Yorktown Foundation subsequently created the Jamestown 2007 Steering Committee in the fall of 1996. The original members of the Steering Committee consisted of the members of the Foundation's Board of Trustees and the members of the Jamestown-Yorktown Educational Trust Board of Directors, as well as representatives of the National Park Service – Colonial National Historical Park, the Association for the Preservation of Virginia Antiquities – Jamestown Rediscovery, and the Office of the Governor of the Commonwealth of Virginia. Additional members were added to the Steering Committee in 1998, with the current membership standing at approximately 30. In addition, all former living governors of Virginia are honorary members of the Steering Committee and the First Lady of Virginia, Mrs. Roxanne Gilmore, serves as the Honorary Chair. (A listing of the current Steering Committee Membership is presented in Appendix A.)

All of the current Steering Committee members are appointed volunteers, and participate in these activities in addition to their primary occupations. Three subcommittees have been defined: Programs and Events, Marketing and Finance, and Logistics. Each of the three subcommittees is composed of members of the Steering Committee plus additional technical resources from the public and private sectors. The primary liaison between the consultant team charged with the development of the Strategic Transportation Plan and the Jamestown 2007 Steering Committee has been a subset of the Logistics Subcommittee, the Logistics Transportation Working Group. (A complete listing of the current membership of the three subcommittees is presented in Appendix B.)

At the present time, the Jamestown 2007 Steering Committee has five dedicated full- and part-time staff members. The various subcommittees receive additional support on an as-needed basis from the staff of the Jamestown-Yorktown Foundation, staff from other state agencies such as the Virginia Department of Rail and Public Transportation and the State Tourism Commission, and staff from the local governments in the Jamestown-Williamsburg-Yorktown area. While this operation appears to have been satisfactory to date, it would appear that additional staff could be beneficial. This will be particularly true in the next several years as the determination of local and regional commemorative events is completed and venue-specific planning is initiated.

■ 3.3 Current Activities

The Logistics Subcommittee's Local/Regional Transportation Working Group, supplemented by representatives of the affected state and local governmental agencies, has managed the development of the Strategic Transportation Plan. The group has met on a general bimonthly basis over the duration of the study. Additional small group meetings and teleconferences with selected members of the Working Group have taken place as necessary. (The membership of the Working Group is presented in Appendix C.)

A brief description of the major stakeholders in the Jamestown 2007 planning process and their current involvement with the creation of the Strategic Transportation Plan is presented below.

- **Jamestown-Yorktown Foundation.** The mission of the Jamestown-Yorktown Foundation is to educate and to promote understanding and awareness of Virginia's role in the creation of the United States of America. The Foundation is an educational institution of the Commonwealth of Virginia and administers two living-history museums. The Jamestown Settlement interprets the cultures of 17th-century colonial Jamestown, America's first permanent English settlement, and the Powhatan Indians. The Yorktown Victory Center interprets the impact of the American Revolution on the people of America and the development of the new nation. As noted previously, the Foundation has been charged by the Virginia General Assembly with the responsibility for coordinating the Commonwealth of Virginia's role in the Jamestown quadricentennial. Members of the Foundation staff have thus played a very active role in the planning process to date. A \$72 million master facilities plan and expanded programmatic elements are well underway at Jamestown Settlement. The Foundation is also engaged in cooperative activities with the Association for the Preservation of Virginia Antiquities and the National Park Service to create a "One Jamestown" experience for visitors to the area.
- **Association for the Preservation of Virginia Antiquities.** The Association for the Preservation of Virginia Antiquities (APVA) is the oldest statewide preservation organization in the United States, and was founded in 1889 for the purpose of rescuing Jamestown Island from decay. Today, the APVA shares responsibility for the ownership and preservation of Jamestown Island with the National Park Service. The APVA is currently engaged in a series of cooperative activities with the Jamestown-Yorktown

Foundation and the National Park Service to create a “One Jamestown” experience for visitors to the area. In addition, APVA, in cooperation with the National Park Service, is administering and funding detailed planning and environmental studies to provide improved visitor facilities on Jamestown Island. Through a series of collaborative workshops and meetings, these planning activities have been closely coordinated with the planning for the Jamestown 2007 Strategic Transportation Plan.

- **Colonial National Historical Park, National Park Service, U.S. Department of the Interior.** Colonial National Historical Park (Colonial NHP) is the unit of the National Park Service (NPS) that is responsible for the administration and operation of the facilities at Jamestown Island, Yorktown National Battlefield, and the Colonial Parkway linking these sites with the city of Williamsburg. Colonial NHP is also responsible for the First Landing Site on the south side of Hampton Roads, Green Springs Plantation, and several other NPS properties in the southeastern Virginia region. A National Park Service special project office has recently been established at the Jamestown Visitor Center and tasked with coordinating all NPS activities with regard to the Jamestown 400th Anniversary.
- **Virginia Department of Rail and Public Transportation.** The Strategic Transportation Plan for Jamestown 2007 has been developed under a contract between the Virginia Department of Rail and Public Transportation (DRPT) and Cambridge Systematics, Inc. DRPT has been designated by the Virginia Secretary of Transportation as the agency responsible for the planning and implementation of the transportation services necessary to support the Jamestown 2007 Commemoration. As the lead agency on this project, DRPT staff have directed the consultant efforts during this initial planning phase, and will continue in this capacity through 2007.
- **Virginia Department of Transportation.** The Virginia Department of Transportation (VDOT) is responsible for the planning, design, construction, maintenance, and operation of all of the public roads in the Commonwealth of Virginia that are not under the jurisdiction of a city or county. In areas such as James City County and York County, all public roads outside of the boundaries of cities such as Williamsburg are controlled and maintained by VDOT. Several different elements of VDOT have participated in this process to date, and will continue to do so for the foreseeable future. These include the Transportation Planning Division in the Central Office in Richmond, the Hampton Roads District Traffic Engineering Section, and the Williamsburg/James City County Residency Office.
- **James City County, York County, and the city of Williamsburg.** These three local political jurisdictions contain virtually all of the potential Jamestown 2007 event venues in the immediate area of Jamestown, Yorktown, and Williamsburg. As such, the efficient movement of people and vehicles to, through, and around these communities will be critical to the success of Jamestown 2007. Representatives of all three jurisdictions have been active participants in the development of the Strategic Transportation Plan. All three jurisdictions maintain their own police forces and public works departments, and provide financial support for James City County Transit. York County has also recently initiated a summer-only trolley service to link the Yorktown National Battlefield Visitors Center with the Yorktown Waterfront area.

- **Colonial Williamsburg.** The Colonial Williamsburg (CW) Foundation is a private, not-for-profit educational institution that preserves and interprets Colonial life in Williamsburg, Virginia. Colonial Williamsburg is considered to be a model of historical research and interpretation, and is arguably the most popular source of information about the Colonial era in America. The Historic Area comprises 173 acres, and contains 88 original and reconstructed Colonial buildings and hundreds of other structures. CW is the largest current transit provider in the Williamsburg area, with a fleet of approximately 20 vehicles transporting more than 3.3 million riders each year. Construction has been recently initiated on a major expansion and modernization of the CW Visitors Center. Upon completion, more than 2,000 parking spaces and more than 80 bus parking spaces will be provided. CW is also constructing a new vehicle maintenance facility for its buses that will also be able to accommodate other local transit vehicles and intercity tour buses. CW staff have been quite active in the development of the Strategic Transportation Plan and have proposed to operate the recommended transit service linking Jamestown, Williamsburg, and Yorktown.
- **James City County Transit.** James City County Transit (JCCT) is the public transportation provider for James City County, the city of Williamsburg, and a small portion of York County. JCCT also coordinates the funding for, and manages, the “Relax-and-Ride” seasonal visitor shuttle service that is currently operated under contract by Hampton Roads Transit. As described in more detail in Section 6.0 of this report, JCCT is planning for a significant service expansion over the next five to seven years. In addition to taking over the operation of the campus bus service for the College of William and Mary, JCCT will be acquiring additional transit vehicles that will allow it to provide service in currently unserved areas and operate more frequently on existing routes. JCCT staff have also been quite active in the discussions leading to the definition of the Strategic Transportation Plan.
- **Hampton Roads Transit.** Hampton Roads Transit (HRT) is the principal public transportation provider for the cities of Newport News and Hampton Roads on the Peninsula and for the other communities located on the south side of Hampton Roads. HRT was created in 1999 through the merger of the formerly separate Peninsula Transportation Authority (Pentran) and Tidewater Regional Transit (TRT) operations. As described in more detail in Section 6.0 of this report, HRT has a current fleet of approximately 300 vehicles, the vast majority of which are full-size urban transit buses. Although HRT does not currently operate regular fixed-route/fixed-schedule service in the Jamestown, Yorktown, or Williamsburg areas, it does provide the vehicles, drivers, and maintenance for the JCCT administered “Relax-and-Ride” service under contract to JCCT. Liaison between the consultant team staff and HRT has been maintained during the development of the Strategic Transportation Plan.
- **College of William and Mary.** The College of William and Mary is the second oldest institution of higher education in the United States, and still retains a number of buildings dating from the late 1600s and early 1700s. The College has always played a major role in the growth and development of the Williamsburg area. The College was instrumental in establishing the “Crossroads Project” to develop a long-range planning vision for the Williamsburg area. The vision is one of sustaining and extending the planning values and quality of life found in the historic core to newer developing areas,

embracing ideas found in smart growth and new urbanism initiatives. Several members of the College faculty and staff serve on the Jamestown 2007 Steering Committee or one of its subcommittees.

- **Hampton Roads Planning District Commission.** The Hampton Roads Planning District Commission (HRPDC) is one of 21 Planning District Commissions in the Commonwealth of Virginia and is a regional organization representing the area's 16 local jurisdictions on both the north and south sides of Hampton Roads. The HRPDC is also the federally designated Metropolitan Planning Organization (MPO) for the southeastern Virginia region. James City County, York County, and the city of Williamsburg are all members of the HRPDC. In its role as the MPO for the region, the HRPDC is responsible for adoption of both the fiscally constrained long-range transportation plan (LRP) and the short-range transportation improvement program (TIP). Any highway or transit projects that may be needed to accommodate the travel demands generated by Jamestown 2007 that anticipate the use of federal funds for their construction or operations will need to be included in the TIP. HRPDC staff are represented on the Logistics Subcommittee for Jamestown 2007 and have participated in Project Management Group meetings.

Although there are a number of other stakeholders in the process, those described above are the most significant in terms of their duties and responsibilities. At the same time, it must be noted that federal legislation was approved and signed into law by President Clinton in December 2000 for the establishment of the "Jamestown 400th Commemoration Commission." As described in its enabling legislation, the purpose of the "Jamestown 400th Commemoration Commission" is to:¹

1. Ensure a suitable national observance of the Jamestown 2007 anniversary by complementing the programs and activities of the state of Virginia;
2. Cooperate with and assist the programs and activities of the State in observance of the Jamestown 2007 anniversary;
3. Assist in ensuring that Jamestown 2007 observances provide an excellent visitor experience and beneficial interaction between visitors and the natural and cultural resource of the Jamestown sites;
4. Assist in ensuring that the Jamestown 2007 observances are inclusive and appropriately recognize the experiences of all people present in 17th-century Jamestown;
5. Provide assistance to the development of Jamestown-related programs and activities;
6. Facilitate international involvement in the Jamestown 2007 observances;

¹H.R. 4907, 106th Congress, 2nd Session; July 20, 2000.

7. Support and facilitate marketing efforts for a commemorative coin, stamp, and related activities for the Jamestown 2007 observances; and
8. Assist in the appropriate development of heritage tourism and economic benefits to the United States.

The legislation provides for a 15-member Commission, all but two of whom are to be appointed by the Secretary of the Interior (four are to be selected from a list provided by the Governor of Virginia and an additional four from a list provided by the chair of the Jamestown 2007 Steering Committee). The other two members are to be employees of the National Park Service, with one being the Director of the National Park Service (or a designee) and the other being an NPS employee with experience relevant to the commemoration. As of the date of this report (March 2001), no appointments to the Jamestown 2007 Commemoration Commission have yet been made. At such time as the Commission is established, it will be important to provide the members with an update on the progress to date of the commemorative activities, particularly including the Jamestown 2007 Strategic Transportation Plan.

■ 3.4 Recommendations

The transportation service and event planning activities outlined in this report will not appear of their own accord. A broadly based planning and implementation process will need to be continued from this date through the completion of the 400th anniversary commemorative activities. To ensure that these technical recommendations are successfully implemented, the establishment of a multilevel planning structure is proposed.

Transportation Coordinator

As planning moves to implementation, transportation logistics and operations should be managed through a single point of coordination. This “point of coordination” could be a single individual, or a small number of individuals, with responsibility for managing the day-to-day transportation needs and operations of Jamestown 2007. Specific responsibilities could include managing the field operations of buses on event days, coordinating emergency and security activities, and overseeing leasing arrangements with bus operators or land holders.

Small Working Groups

The recommendations presented require more in-depth analysis and coordination to support the more detailed budget and staffing requests they will generate. We recommend that the members of the Transportation Logistics Working Group and others nominated by the group continue to work with the consultant team on the following components of the Jamestown 2007 transportation system. These elements should be considered not only in the context of major event planning as they have here but, just as importantly, in the

context of the hundreds of small events that are anticipated to occur throughout the Commonwealth between 2006 and 2007:

- Park and Ride/Park and Walk Lots;
- Local and Intercity Bus and Rail Transit;
- Intelligent Transportation Systems (ITS) and Visitor Information Systems;
- Traffic Control and Operations;
- Transportation Demand Management; and
- Venues and Events Operations.

Transportation Policy Group

In addition to attending to day-to-day technical planning activities, important policy and funding issues will arise. Consideration could be given to the establishment of a Transportation Policy Group that would oversee the activities of the members of the Transportation Logistics Working Group.

The proposed membership of the Transportation Policy Group is as follows:

- The Commissioner of the Virginia Department of Transportation;
- The Director of the Virginia Department of Rail and Public Transportation;
- The Superintendent of the Virginia State Police;
- The Executive Director of the Jamestown-Yorktown Foundation;
- The Superintendent of Colonial National Historical Park;
- The Manager of the James City County Transit System;
- The Executive Director, Williamsburg Area Convention and Visitors Bureau;
- The Executive Director of Hampton Roads Transit;
- The Mayor of the city of Williamsburg; and
- The Chairmen of the Boards of Supervisors for James City County and York County.

These individuals, or their designees, would be authorized and directed to provide policy direction for all of the transportation planning and operational aspects of the Jamestown 2007 Commemoration.

- Close coordination and cooperation will also be necessary between the participants on the various transportation sub-working groups and representatives of the recently established Federal Jamestown 2007 Commemoration Commission. To the degree that permanent and/or temporary staff are assigned to the Federal Commission, they should be considered for representation on the Jamestown 2007 Transportation Working Group, and perhaps even on the Jamestown 2007 Transportation Policy Group.

An important rationale for the Transportation Policy Group and their staffs is to provide continuity of purpose and vision through the political cycles that lie ahead. This is uniquely important in the Commonwealth of Virginia, where the constitutional limitation on gubernatorial succession means that the decisions made by Governor James Gilmore and the Governor elected in November 2001 will set the framework for the actions to be taken by the Governor elected in November 2005. It is this latter Governor whose legacy will be defined by the success of Jamestown 2007.

The principal responsibilities of the Transportation Policy Group will be to ensure that high-level policy and financial decisions are made when they are necessary in order to ensure the success of the transportation elements of Jamestown 2007. This will be particularly important during the two to three years prior to 2007 when the final capital and operating budgets for Jamestown 2007 are being established. If the necessary funds are not allocated at this time, the potential exists for serious mobility problems to be encountered, particularly during the most heavily attended, high-profile events associated with Jamestown 2007.

The members of the Transportation Policy Group will need to maintain close and continuous coordination with the federal, state, and local agencies responsible for the actual implementation and operation of the Jamestown 2007 transportation plan. This will primarily include the Virginia Department of Transportation and the Department of Rail and Public Transportation, the local public transit agencies in the Hampton Roads region, and state and local law enforcement agencies. As was the case in 1957, close liaison will also be needed between the Transportation Policy Group and the recently established Jamestown 400th Anniversary Federal Commission and representatives of the U.S. Department of Defense. This coordination function will take place primarily through regularly scheduled meetings of the Transportation Policy Group.

The timing of the meetings of the Transportation Policy Group will vary over time. Initially, during the period 2001-2003, the group will probably need to meet no more frequently than once every four to six months to receive updates from DRPT and VDOT staff on the status of the planning activities. As more detailed project implementation and funding decisions need to be made in 2004 and 2005, the group will probably need to meet on a regular twice-monthly basis. As initial elements of the strategic transportation plan begin to come on line in 2006 and final operational planning takes place, the group will need to meet monthly. During 2007, the frequency of meetings may need to increase to once every two weeks. This would allow for real-time reporting of operational issues and concerns to be presented, with necessary corrective actions identified and implemented as quickly as possible.

At the conclusion of the 400th Anniversary commemoration, the Transportation Policy Group might be assigned a final responsibility to produce what could be termed an "after action report." This would serve to document how well the implementation of the strategic transportation plan accomplished its goals, identify any problems or issues that were observed and how they were addressed, and outline the protocols by which the transportation elements for the 450th Anniversary commemoration in 2057 might be formulated.

4.0 Case Studies

■ 4.1 Introduction

Transportation planning for special events is a complex undertaking, requiring strong partnerships, solid financial support, and strong technical capabilities. OpSail 2000 and the 2002 Winter Olympic Games share these qualities and offer useful insights for Jamestown 2007. The planning and operations activities for these two events are described in this section.

■ 4.2 OpSail 2000 Case Study

Background

On June 16, 2000, 50 tall ships from around the world sailed into the Hampton Roads area. This was the first stop of OpSail 2000, the largest display of tall ships ever seen on the East Coast. The ships' arrival kicked off a five-day celebration coordinated by the cities of Hampton, Portsmouth, Virginia Beach, Chesapeake, and Norfolk. Literally hundreds of events were planned for each city, including outdoor concerts, dance parties, and art shows.

Organizers are touting OpSail as an economic success. Initial data suggest that attendance estimates ranging between two to three million persons are likely to be met or exceeded. Organizers have also estimated that external visitors (14 to 20 percent of the total) spent an average of \$140 per person, while others spent \$55 per person, far exceeding spending to organize the events.

VDOT and other transportation officials anticipated severe congestion on I-64 and the Hampton Roads Bridge/Tunnel, but these fears did not materialize. This was due in part to the fact that OpSail and related events were dispersed across five cities over a period of five days. And while the tall ships' arrival, the Parade of Sails, took place during the Friday morning commute, it appears that many workers in the downtown areas decided to get an early start on their weekend. Additionally, local officials planned and executed a very effective transportation management plan.

The Transportation Plan

In 1998, the organizers for OpSail approached the Norfolk Harborfest organizers for assistance with traffic management for OpSail 2000. John Hazelette, of the Norfolk Public School system, had provided assistance with transportation management for Harborfest during its first few years in Norfolk. At that time, a lack of public parking downtown and high attendance necessitated the use of remote park and ride lots served by exclusive bus lanes on I-64 and a very aggressive traffic management system, including removal of on-street parking and temporary designation of one-way streets. Mr. Hazelette coordinated the transportation planning for this year's OpSail as well, and chaired the OpSail Transportation Committee.

While no formal plan for traffic management plan was developed for OpSail, the general approach taken can be summarized as:

1. Facilitate access to the downtown parking areas by automobile;
2. Establish a limited number of remote park and ride lots to serve out-of-town visitors; and
3. Develop an internal bus circulation system connecting points of interest within each city.

Access to the downtown parking areas

Because visits to most of the major East Coast cities were on the OpSail itinerary, planners correctly assumed that the majority of visitors would be familiar with the regional and local road systems. Local visitors would be directed to downtown areas. After parking their cars, they would utilize an internal bus system. Organizers anticipated ample downtown parking to serve local demand. In Norfolk for example, planners estimated that the 27,000 public parking spaces would serve more than 240,000 persons daily, assuming a turnover rate of three cars per day and three persons per car. On the morning of the Parade of Sail, HOV restrictions on I-64 were relaxed. Planners considered establishing a bus-only lane on I-64 to serve the Parade of Sail, but later discarded the idea because of potential weaving conflicts between buses and other vehicles. Variable message signs placed about a mile upstream of the downtown parking areas directed visitors to available parking. State police coordinated with the bridge tunnel authority to identify and clear incidents quickly and to prevent any drivers from using the roadway shoulder as a stopping point to view the tall ships. In the downtown areas, tall ship berthing areas were organized into a number of five- to six-block districts; city police and OpSail volunteers strictly controlled auto access to each district.

Remote park and ride lots

Two primary remote park and ride lots were established, one at Thomas Nelson Community College with a capacity of 700 in Newport News and a second at Military Circle, in Norfolk, with a capacity of 1,800. These lots were selected to capture visitors unfamiliar with the Hampton Roads area. A third lot at Harbor Park in Norfolk served as a transfer point for traffic to Military Circle and the oceanfront.

Planners established connections between these parking lots and each of the five cities sponsoring events over the five-day period. Bus frequencies were prominently displayed on signs at each stop, with increased service corresponding to anticipated peak demands on Saturday night. At the very peak of service (midnight on Saturday night) two and three buses at a time were departing the hub lots; additionally, 60 buses were in operation at Military Circle. Fifty buses were waiting on standby as a contingency to replace disabled buses or to serve unexpectedly high demand. Otherwise, service between the five cities generally ran at 30- to 60-minute intervals.

Hampton Roads Transit provided the bulk of the connector service, augmented by school buses from cities participating in the event. Each school district providing buses for OpSail entered into agreements with HRT and OpSail to cover the school district's expenses for bus maintenance and operation. State law requires that any municipality using school buses for non-school uses must assume full liability in case of insurance default or failure to reimburse the district.

Internal Bus Circulation System

Points of interest within each city were organized into districts. Vehicular access to each district was strictly limited to vendors, organizers and school bus operators providing access within and between districts in each city. Shuttle buses within each district typically operated at 20-minute intervals, according to schedules clearly displayed at each bus stop. To minimize delays and to simplify operations, all the internal circulator buses were available free of charge. On some major roads in Norfolk, exclusive bus lanes were established to minimize conflicts with autos and other vehicles.

Organization

The local chapter of OpSail, Norfolk Festevents, was sanctioned by OpSail to organize related activities in the Hampton Roads area. Karen Scherberger, executive director of Norfolk Festevents, formed a number of committees to develop plans for security, marketing, communications, signage, and transportation. Additionally, a mayors' advisory committee was formed, to coordinate event planning for each city. The Commonwealth Transportation Board approved the creation of the transportation committee to support transportation planning for OpSail and empowered each of the public sector agencies involved – including VDOT and Hampton Roads Transit – to designate technical representatives with a dedicated allotment of time to serve on the transportation committee. John Hazelette, chair of OpSail's Transportation Committee, enlisted traffic engineers for each city as well as representatives from the Bridge/Tunnel Authority, VDOT, Hampton Roads Transit and municipal police departments. John Hazelette organized the transportation committee in 1998, but actual work on the traffic management and circulation plan began in earnest one year later. The core group met every two weeks, with representatives of each city reporting their event plans to the transportation committee. The committee limited its authority to planning the shuttle bus system and controlling access to the regional interstate system, playing an advisory role to the five cities as each developed its own internal traffic management and circulation plan.

Funding

Karen Scherberger, the local OpSail coordinator, secured public support for the transportation management through the Commonwealth Transportation Board and the governor's office. Karen received a great deal of support for her efforts from the local delegation, which presented the governor with a list of needs to support the five-day festival. However, OpSail received the bulk of its funding from corporate sponsorship, which included value in-kind products and services and cash contributions. Various levels of sponsorship corresponded to the type and extent of advertising allowed each sponsor during the events.

HRT charged users to cover the expense of its bus operations, with OpSail agreeing to cover any shortfall. Based on past experience, HRT estimated that ridership at capacity would reach 150,000 trips. Based on that assumption, HRT charged users \$15 for a four-day pass, \$8.00 for a daily pass and \$2.00 for an individual trip pass. Mobile fee collection booths were set up at each of the major transfer points. No fees were charged at any of the internal circulator bus locations. OpSail paid HRT separately for operation of the Park and Ride lots at a rate of \$47.50 per hour per supervisor.

Communications/Marketing

OpSail organizers made certain that each visitor to the Hampton Roads area knew about the travel options for getting to and around the area. The Virginia Pilot published an OpSail web site, which described the schedule of events, and provided a description of transportation options for visitors. Similar information was available in brochures and newspaper supplements available throughout each city. Numerous volunteer-manned "navigation stations," conveniently located throughout each district, provided visitors with maps and directions to all transportation services available. Bus schedules were prominently displayed at each bus stop, and parking options and directions to OpSail events were provided to drivers via portable variable message signs placed a mile or so upstream of major exit points on the highway system.

Organizers were generally pleased with the attention given the event by the media. There was some feeling however, that warnings of severe traffic congestion that did not materialize actually may have dampened attendance. John Hazelette recalled briefing a television reporter on transportation plans for OpSail. Before the interview began, John assured the reporter that previous warnings of gridlock were exaggerated and that his committee had gone to great lengths to avoid such problems. The edited version of the interview and the subsequent commentary broadcast by the television station instead played up the same previous negative message Mr. Hazelette had tried to counteract. For Mr. Hazelette, the most important lesson learned from OpSail is the critical need to manage the media's perceived ability to manipulate public interest in any given event.

Conclusions

1. Have a dedicated pool of technical experts available. *The representatives from VDOT and other agencies were allotted a percentage of their work time for assistance with transportation planning for OpSail.*
2. Manage media relations. *Time and again, public and private sector event organizers ascribed a great deal of influence to the media in terms of their ability to generate interest in an event. It follows therefore, that every effort to avoid negative publicity should be made well in advance of any event.*
3. Spread transportation demand as much as possible. *The availability of multiple events occurring simultaneously over several locations was a major factor in avoiding large traffic delays over the OpSail weekend. A similar approach is at least as critical for Jamestown 2007, given the limited transportation capacity leading to the island.*

■ 4.3 Salt Lake 2002 Case Study

Background

The XIX Olympic Winter Games will take place in Salt Lake City, Utah, and the surrounding area from February 8 to 24, 2002. The 2002 Games will be the largest Olympic Winter Games ever and Salt Lake City is the largest city ever to host them. Approximately 3,500 athletes from 80 countries will compete in 77 medal events in seven sports. There are 10 competition venues and five non-competition venues are spread across an area 70 miles across. Spectators will purchase 1.6 million tickets and thousands of other residents and visitors will gather in public celebrations during the Games. The events will be reported on by 10,000 broadcast and print media.

Regional Transportation System

Salt Lake City is the capital city of Utah and the center of a vibrant and growing region. The region includes two geographic components, separated by the ridgeline of the Wasatch Mountains. The first part includes the urbanized areas of Salt Lake County (including Salt Lake City), Utah County (including Provo), Weber County (including Ogden), and Davis County, located west of the ridgeline and collectively referred to as the Wasatch Front. The second part is made up of areas east of the ridgeline, including Park City, Summit County, Wasatch County, Weber County, and Morgan County, collectively referred to as the Wasatch Back. The Wasatch Back is more rural in nature and more mountainous than the urbanized areas of the Wasatch Front.

Interstate highway access is provided to the region via I-15, which runs generally north-south through the Salt Lake valley, and I-80, and I-84, which run generally east-west.

I-215 serves as an outer “beltway” around Salt Lake City. In addition to these major highways, the region is well served by U.S. and state highways.

Public Transit systems exist along the Wasatch Front and in Park City. The Utah Transit Authority (UTA) provides bus and light rail service throughout the Wasatch Front. UTA has an existing bus fleet of 594 buses, which will be increased to 760 buses during Games Time. In addition, UTA operates a 15-mile light rail system known as TRAX. The current UTA bus system is a fixed route and schedule system and includes long-distance express routing. The existing UTA light rail service consists of a 15-mile line running south from Downtown Salt Lake City to Sandy. The service operates on a dedicated right-of-way and includes 16 stations and 23 light rail vehicles. Travel time from the end of the line to Downtown Salt Lake City is about 30 minutes.

The regional transportation system is shown in Figure 4.1.

Park City Transit operates scheduled bus service in Park City and the surrounding area. The system, which serves primarily a tourist market, connects the town with the local ski resorts, hotel, and condominium areas.

Ongoing Transportation System Improvements

The Utah Department of Transportation (UDOT) is currently reconstructing a 17-mile section of I-15 in downtown Salt Lake City. This \$1.6 billion project is the largest design-build project ever in the United States. The project involves widening a six-lane interstate highway to a total of 12 lanes including general purpose, high-occupancy vehicle, and auxiliary lanes. A total of 137 structures are being reconstructed. These include eight urban interchanges, a new HOV interchange, reconstruction and shortening of three viaducts in Salt Lake City, and reconstruction of three major junctions with other interstate highways including I-80 and I-215. While the project is eligible for federal funding, the majority of the project cost is being covered by the state of Utah with the possibility of future federal reimbursement.

UTA is constructing an addition to the TRAX system that would extend service 2.5 miles east to the University of Utah, site of Opening and Closing Ceremonies. The extension will add four stations and 10 light rail vehicles to the existing system. Current plans call for construction to be complete by fall 2001.

Locations of Olympic Venues

Olympic Venues are distributed throughout the region with the indoor venues for ice sports located in the Wasatch Front area and the outdoor venues for alpine, Nordic and bobsleigh, and luge located in the Wasatch Back. The Olympic Village, Main Media Center, and the Olympic Stadium are all located in Salt Lake City. Figure 4.2 shows the locations of Olympic venues.

Figure 4.1 Regional Transportation System for 2002 Winter Olympics

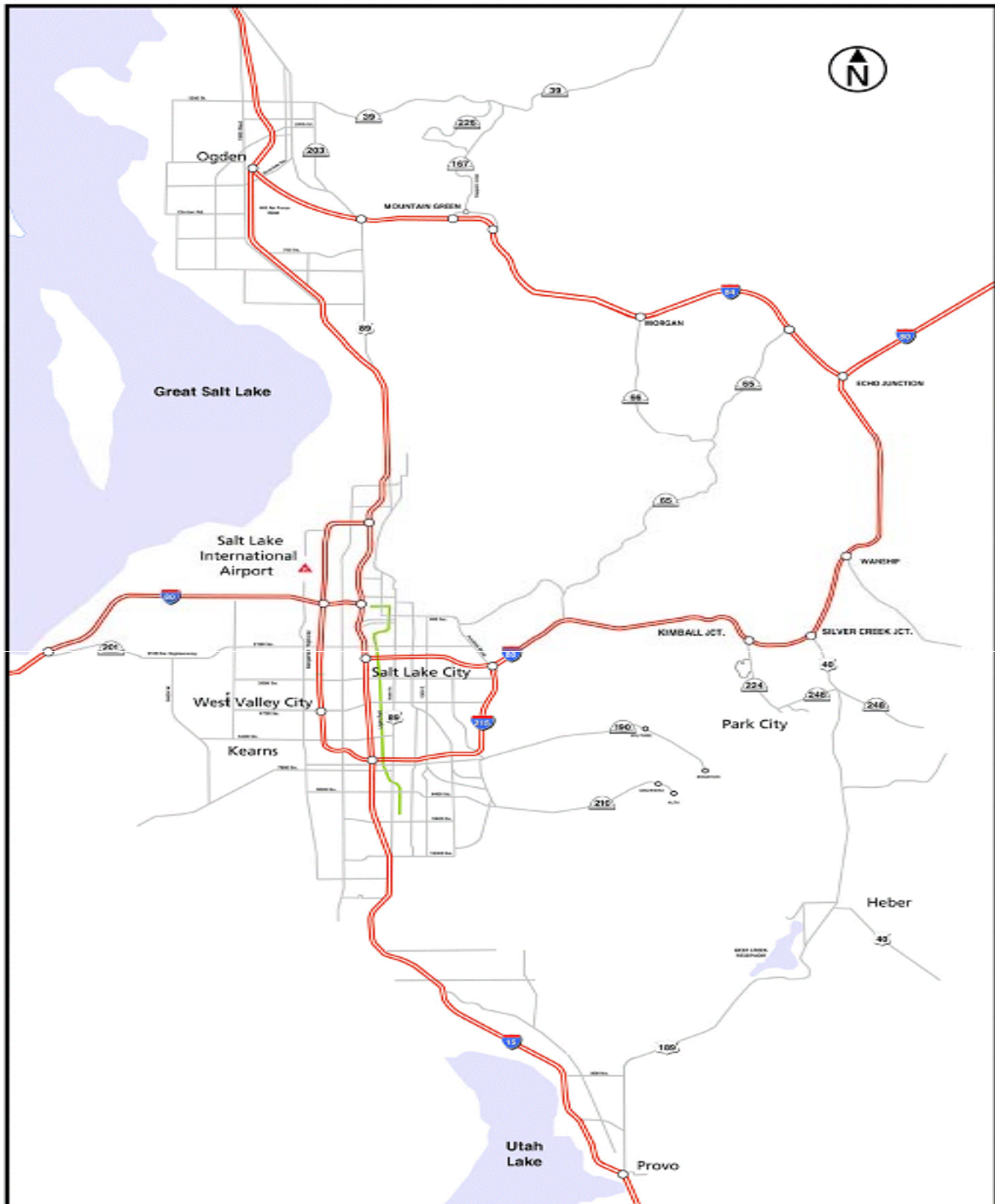
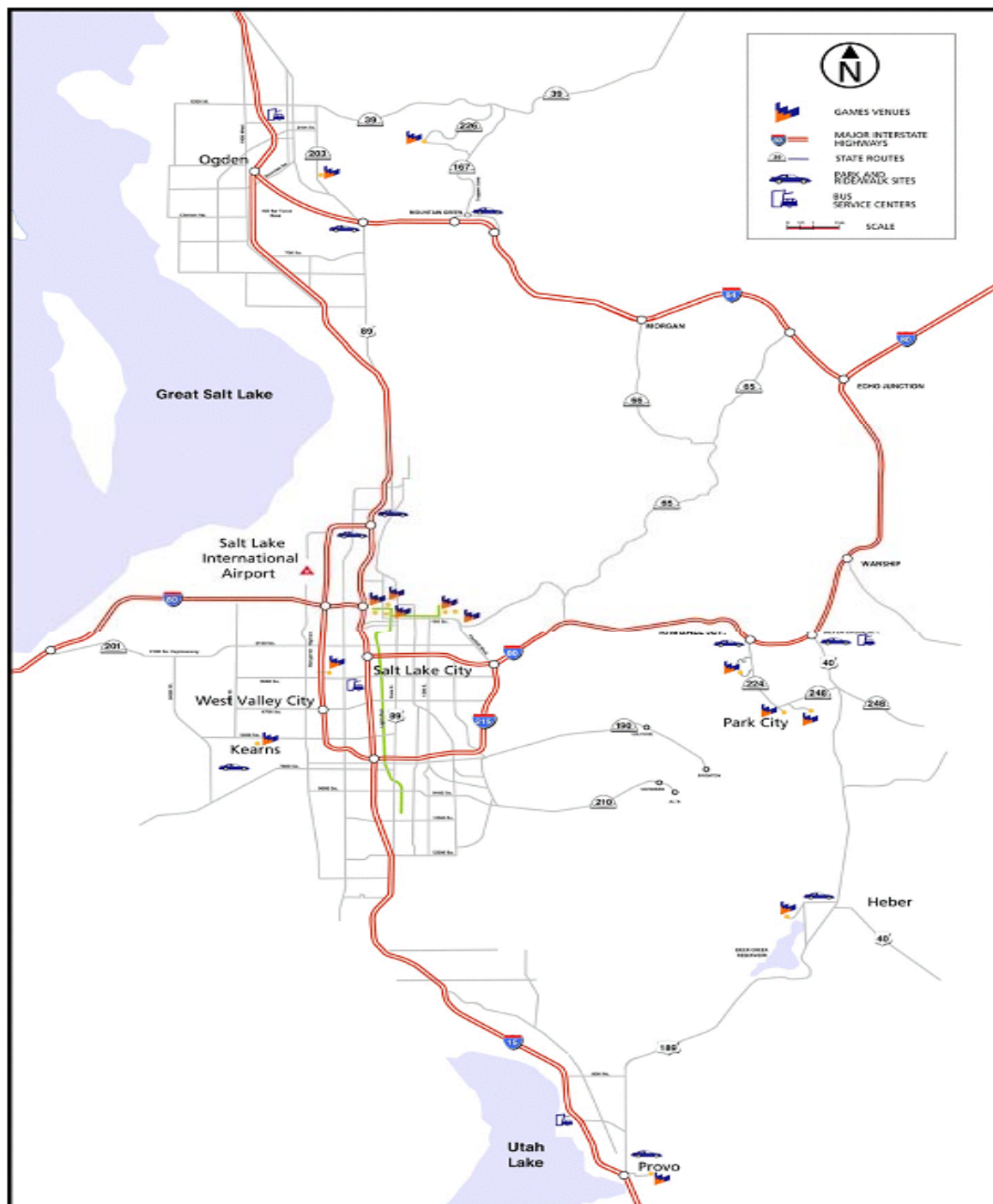


Figure 4.2 Location of Olympic Venues



Olympic Transportation Plans

The Salt Lake Organizing Committee for the Olympic Winter Games of 2002 (SLOC) is the designated Olympic organizing committee for the 2002 Olympic Winter Games and is responsible for ensuring that transportation requirements are met.

Transportation planning has been ongoing since 1997. A basic transportation concept was developed by mid-1998 and has been refined and updated since then. A Draft Olympic Transportation Plan was published in August 2000 and was finalized in December 2000. Elements of the plan are summarized in this section.

Olympic Transportation Systems

During the Games, transportation systems will be operated for the athletes, media, Olympic Family, sponsors, spectators, and non-ticketed visitors. The special needs of each of these groups require distinct systems.

Athletes

The athletes transportation system will use approximately 500 large 12-passenger vans, 50 cargo vans, and 44 recliner coach buses on predetermined routes between two housing sites and the 13 competition and training venues. Vehicles in this system will use, to the extent possible, different routes to access the venues than the spectator buses, and will typically access such venues much earlier than any other user group. The Athlete Transportation Systems will operate 24 hours per day.

Media

A shuttle system will be used for members of the media (print and broadcast) who will cover the Olympic Winter Games of 2002. Three subsystems will provide service between media housing sites and the Main Media Center (MMC), and between the MMC and the competition venues. The system will use approximately 300 recliner coach buses on predetermined routes and will operate up to 24 hours per day from January 28, 2002 through February 27, 2002. On-demand service will not be offered to members of the media. The media shuttle buses will use, to the extent possible, routes to access the venues that are different than the spectator buses. Media will also be provided free passes for the use of public light rail transit and buses in Salt Lake City and Park City.

Olympic Family

A Motor Pool System comprising approximately 1,000 automobiles, vans, and sport utility vehicles, and 50 coach buses will be operated throughout the Games for the Olympic Family. The Motor Pool System will provide transportation between Salt Lake City International Airport and the Olympic Village, between the Olympic Village and the venues, between the Olympic Village and the Olympic Medals Plaza, and between the Headquarters Hotel and the Olympic Village, Olympic venues, the Olympic Medals Plaza, and Salt Lake City International Airport. All other motor pools will provide 24-hour

operations. The Olympic Family will use, to the extent possible, different transportation routes to access the venues than the spectators' buses.

Sponsors

Beginning and ending at their accommodations, sponsors will be transported to and from Olympic Venues and other sponsor activities by approximately 300 private motor coaches hired by the sponsors. Sponsors' buses will be allowed access to Olympic venue sponsor load/unload zones or park and ride/walk facilities. The systems, however, are designed not to conflict with spectator transportation operations. To the extent possible, sponsor buses will be routed to the venues via different routes than the spectators' buses and automobiles.

Spectators

For all venues outside of the Salt Lake Valley, the majority of spectators and volunteers are expected to use personal vehicles to travel between their lodging or residences and park and ride, or park and walk lots serving the competition venues. For the most part, these park and ride lots will be located within five miles of each venue. At the park and ride lot spectators and volunteers will board standard transit buses for a shuttle ride to the venue. In order to speed the loading and unloading of buses and maximize their turn-around, tickets will likely not be sold or collected for the buses. Separate access and egress drives will be provided at the park and ride lots for cars and shuttle buses to avoid conflicts and congestion. The park and walk lots will be located within one and one-half miles of selected venues. In all cases provisions for spectators with disabilities will be provided. Signage and traffic controls will be provided to aid in the access to the park and ride lots and to reduce potential pedestrian and vehicle conflicts. For spectators desiring a transit alternative, long-haul bus service connecting Salt Lake City with outlying venues will be provided by private bus companies.

For venues in the Salt Lake Valley, UTA will provide extensive transit service to Olympic venues including bus service, park and ride shuttle service, and TRAX light rail. For certain venues, spectators will also have the option of driving to parking lots located adjacent to the venue.

Approximately 1200 loaned transit buses will be used to support the spectator transportation system. These buses will be used to augment existing transit fleets and to provide shuttle service from park and ride lots to venues.

Non-Ticketed Visitors

Non-ticketed visitors will have access to public light rail transit and public transit buses in Salt Lake City and Park City to access the Olympic Medals Plaza and other non-ticketed areas. Non-ticketed visitors will not use the Olympic shuttles and park and ride lots. Ski resort venues hosting day skiers will be responsible for providing access for their patrons.

Travel Estimation Modeling and Impact Analysis

In order to properly plan for the transportation needs and impacts associated with the Games, SLOC has developed a specialized travel estimation model. The model, known as Logistical Information for Transportation 2002 (LIFT 2002) derives travel-demand estimates from two sources: 1) Olympic traffic estimated from a Venue Capacity and Population Model (VCPM), developed by SLOC, and 2) estimated background traffic from a UDOT annual publication, *Traffic on Utah Highways*.

Each Olympic constituent group has different requirements for travel and the model is capable of identifying the mode and arrival time by hour of the day. Based on the schedule of the events, the size of the venues, and the origins of the Olympic travelers, a database has been created that identifies the demand by user group, mode of travel, and time of day. This information will be specific for each day of the Games and will be modified if the schedule of events changes.

The Olympic travel-demand estimates, described above, are next overlaid on estimated “background” traffic. Background traffic is taken from *Traffic on Utah Highways*. This traffic data will be factored by growth history to Games Time 2002. Also using UDOT data, the background traffic will be factored to day of the week and hour of the day.

The Olympic travel-demand estimates will be combined with the background estimates and the result will be assigned to the regional network to determine the expected volumes, delays, available capacity, and potential deficiencies on regional and local facilities. The rerouting of traffic onto alternative routes as a result of the Olympic travel-demand estimates will also be identified. Assignments will be performed in a manner to estimate hourly travel impacts in conjunction with schedule for the Games Time Transportation Operations Plans. Hourly traffic volumes will be processed and input into other analytical tools that will allow traffic management plans to be developed for specific venues and facilities.

Simulation models are also being developed for certain specific venues to better assess specific on-site transportation impacts. Available data will be used to develop these models including background transportation demand and supply data, bus staging, park and ride/walk lot operations, pedestrian walkway plans, and other characteristics associated with each venue.

Organizational Structure

Several federal, state, and local agencies and stakeholders have been working with SLOC to ensure that the transportation system of the Salt Lake region is able to accommodate the demands of the Olympic Winter Games. These organizations have also been working with SLOC to develop the policies, plans, and procedures that form the basis of the Olympic Transportation Plan. The participating organizations contribute to the Olympic Transportation Plan through three collaborative structures:

- The Olympic Transportation Policy Group;
- The Olympic Transportation Working Group; and

- Loaned employees from the participating organizations who work as a part of the SLOC Transportation Department on a daily basis.

The Olympic Transportation Policy Group (OTPG) was established in February 1999 and is chaired by the Executive Director of the Utah Department of Transportation (UDOT). In addition to UDOT, members include the Chief Executive Officer of SLOC, the Mayors of Salt Lake City and Park City, the Chairs of the Wasatch Front Regional Council (WFRC) and Mountainlands Association of Governments (MAG), the General Manager of the Utah Transit Authority (UTA), and the Olympic intermodal liaison from the U.S. Department of Transportation (U.S. DOT). The purpose of the OTPG is to provide policy direction for transportation planning for the Games.

The Olympic Transportation Working Group (OTWG) was established in August 1997 and is composed of federal, state, and local agencies as well as interested business and community stakeholders living and conducting business in this region. It has five sub-working groups focused on the detailed planning for Intelligent Transportation Systems, Bus and Rail Transit, Park and Ride Lots, transportation-demand management, and Traffic. The OTWG is responsible for providing input and technical support for the Olympic Transportation Plan. Membership of the OTWG includes, but is not limited to:

- Federal agencies: Federal Highway Administration (FHWA), Federal Transit Administration (FTA), Federal Aviation Administration (FAA), and Federal Railroad Administration (FRA);
- State agencies: UDOT, Utah Department of Environmental Quality (DEQ);
- Councils of Governments: WFRC, MAG;
- Transit agencies: UTA, Park City Transit (PCT);
- Salt Lake City International Airport;
- University of Utah;
- Utah Olympic Public Safety Command (UOPSC);
- Transportation Management Association;
- Regional transit operators, traffic engineers, government agency staff, and police; and
- Regional business and community stakeholders.

The SLOC Transportation Department is made up of SLOC personnel and representatives from UDOT, UTA, and WFRC. The Transportation Department is responsible for transportation planning, oversight of capital project development in cooperation with UDOT, UTA, and other agencies, and Games Time operations of the transportation system.

Funding

Funding for Olympics transportation projects is covered in three ways. Costs of transportation systems for athletes, media, and Olympic Family are included in SLOC's budget. Costs of sponsor transportation systems are covered by the sponsors themselves.

Costs of highway improvements and the spectator transportation system are assumed to be covered by the U.S. federal government, and are not included in SLOC's budget. Alternative analyses have been completed to minimize project costs while maintaining an acceptable level of service. To date, the federal government has supported SLOC's funding needs for highway improvements and the spectator transportation system and indications are that the needed support will be provided in federal fiscal years 2001 and 2002.

A significant issue in obtaining federal government support for Olympics priorities has been in developing a regional consensus on which elements of the transportation plan were most needed to ensure the success of the Games. The conflict resulted from a desire on the part public officials to use the Olympics to build a case for funding major "legacy" projects on the one hand, and the actual operating requirements of Olympics organizers. This led to confusion on the part of funding agencies as to what was really needed and who was ultimately responsible. This issue took more than two years to resolve, and had a negative impact on how funding agencies viewed requests for financial support.

Implications for Jamestown 2007

The implications that can be drawn from the XIX Olympic Winter Games that are pertinent to transportation planning for Jamestown 2007 include the following:

1. Provide sufficient lead time to ensure that needed transportation facilities are in place. Detailed transportation planning for the 2002 Olympic Winter Games began five years in advance. Planning for major infrastructure construction by state and local agencies began even earlier.
2. Establish clear priorities for funding. Funding agencies will be less willing to provide support if they receive conflicting requests.
3. Link transportation planning to specific events. To the extent that events can be defined, transportation needs can be determined more accurately.
4. Identify clear roles and responsibilities among participating agencies.

5.0 Visitor Profile

■ 5.1 Introduction

The purpose of this section is twofold. First, a description of historical visitation trends and current visitor characteristics is presented for a number of the major attractions in the Jamestown-Williamsburg-Yorktown region. Then, the methodology for the development of future-year, “base-case” visitation projections for the period 2005-2010 will be presented, along with these base-case visitation levels. These visitation patterns and projections form the basis for the analysis later in this section and in subsequent sections of this report on the transportation impacts associated with the Jamestown 2007 Commemoration activities presently envisioned.

■ 5.2 Historical Visitation Trends

The historical visitation information that has formed the basis for this analysis has been compiled from a variety of sources, including, but not limited to, the following:

- The Jamestown-Yorktown Foundation (for information specific to the Jamestown Settlement and the Yorktown Victory Center);
- The Colonial Williamsburg Foundation (for information specific to Colonial Williamsburg);
- The National Park Service of the U.S. Department of the Interior (for information specific to Colonial National Historical Park); and
- The Virginia Tourism Corporation (for general information on tourism activities in the region).

Historical information from all available sources was used to develop the base-case visitation estimates for 2005-2010.

Annual Visitation Data

Jamestown-Yorktown Foundation

Annual paid visitation (attendance) data was obtained from the Jamestown-Yorktown Foundation over the period of 1957-2000 for the Jamestown Settlement and for the period 1976-1999 for the Yorktown Victory Center. This information is summarized on Table 5.1. Figures 5.1 and 5.2, respectively, display this data in the form of trend lines.

The Jamestown Settlement was originally established in 1957 as “Jamestown Festival Park.” Although this was envisioned as being only a “temporary” attraction during 1957 in connection with the 350th Anniversary Commemoration of the establishment of Jamestown, the huge success of the exhibition resulted in this becoming a permanent visitor attraction in the region.

Following a peak paid visitation of 622,494 persons in its first year of operation in 1957, and a drop to 155,663 visitors in 1958, annual paid attendance exhibited a relatively steady increase that ranged between about 220,000 and 405,000 persons over the period 1959-1976. During the late 1970s and early 1980s, visitation remained relatively static, in a range of about 250,000 to 275,000 persons per year. Beginning in 1986, annual paid visitation has exhibited a consistently steady increase, reaching a value of approximately 512,000 persons in 2000. This represents approximately 82 percent of the historical peak annual visitation at this attraction that took place in 1957.

A somewhat similar situation has been observed at the Yorktown Victory Center. Between its first year of operation in 1976 and 1988, annual paid visitation at this attraction was in the range of about 65,000 to 97,000 persons per year. Since 1989, annual visitation has been in excess of 100,000 persons, and has exhibited relatively steady growth from year to year. The attraction’s historical peak annual paid visitation of approximately 199,000 persons was observed in 2000.

Thus, both the Jamestown Settlement and Yorktown Victory Center appear to be experiencing a significant increase in paid visitation over time. Anecdotal information provided by the staff of the Jamestown-Yorktown Foundation has attributed much of the recently observed growth to increased visitation by school groups and cooperative advertising initiatives with other attractions in the region.

The Colonial Williamsburg Foundation

As illustrated on Table 5.2, annual paid visitation at Colonial Williamsburg has generally ranged between approximately 950,000 and 1.2 million persons over the past 30 years. The highest recorded visitation during this period occurred in 1975 and 1976 during the U.S. Bicentennial Celebration when, respectively, 1,240,934 and 1,280,977 paid admissions were recorded. Figure 5.3 illustrates annual paid visitation at Colonial Williamsburg over the period 1966-2000.

Table 5.1 Historical Paid Visitation at Jamestown Settlement and Yorktown Victory Center

Year	Jamestown Settlement	Yorktown Victory Center
1957	622,494	N/A
1958	155,663	N/A
1959	219,509	N/A
1960	231,440	N/A
1961	242,230	N/A
1962	255,684	N/A
1963	265,596	N/A
1964	282,877	N/A
1965	330,325	N/A
1966	357,738	N/A
1967	360,696	N/A
1968	368,518	N/A
1969	362,877	N/A
1970	376,429	N/A
1971	403,157	N/A
1972	405,492	N/A
1973	404,941	N/A
1974	342,125	N/A
1975	397,017	N/A
1976	361,099	85,082
1977	296,190	72,167
1978	307,742	71,519
1979	268,786	64,351
1980	278,516	81,421
1981	271,903	77,982
1982	250,317	83,595
1983	253,870	80,203
1984	269,812	97,350
1985	275,223	97,372
1986	255,967	85,035
1987	256,118	81,547
1988	281,280	90,326
1989	302,591	101,388
1990	342,500	100,275
1991	358,655	100,981
1992	361,642	102,974
1993	373,081	125,335
1994	392,470	147,857
1995	438,336	163,453
1996	449,754	163,521
1997	473,617	181,218
1998	473,563	175,948
1999	479,898	189,456
2000	512,613	198,961

Source: Jamestown-Yorktown Foundation.

Figure 5.1 Annual Paid Visitation at Jamestown Settlement
1957-2000

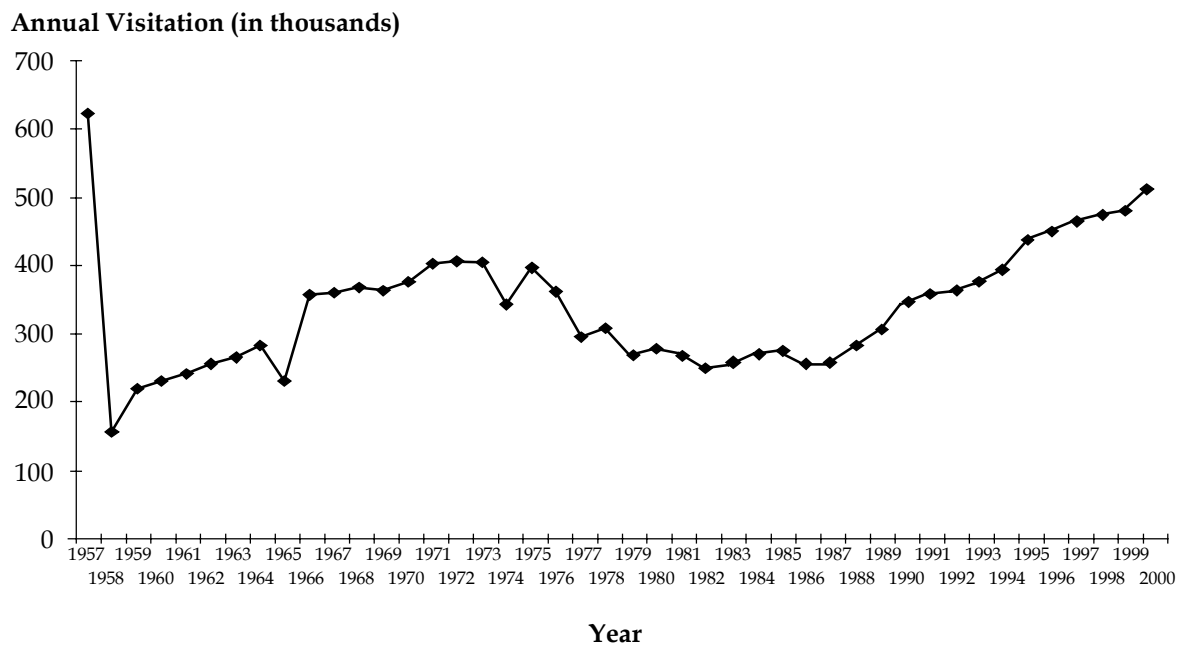


Figure 5.2 Annual Paid Visitation at Yorktown Victory Center
1976-2000

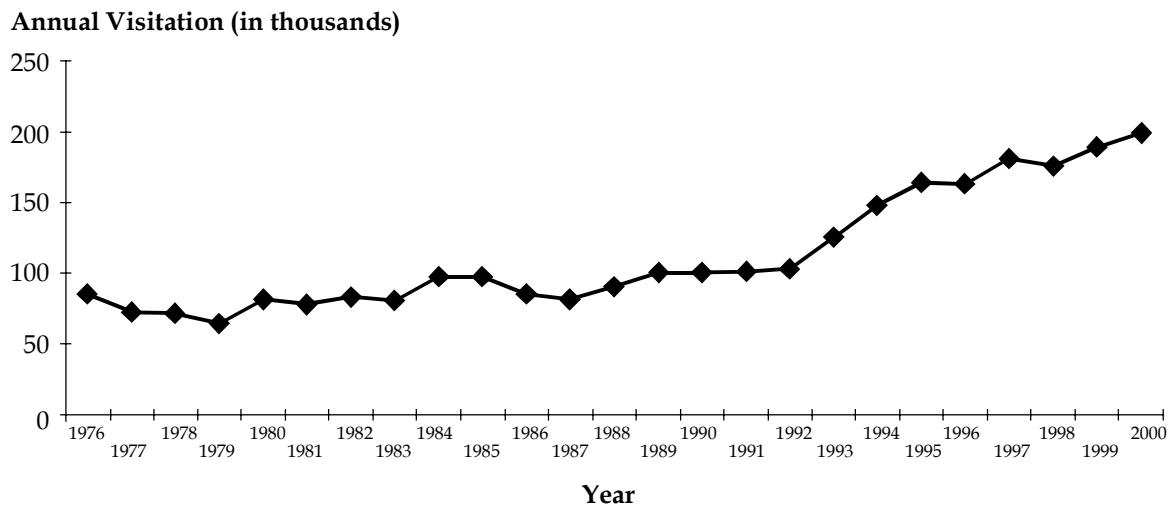
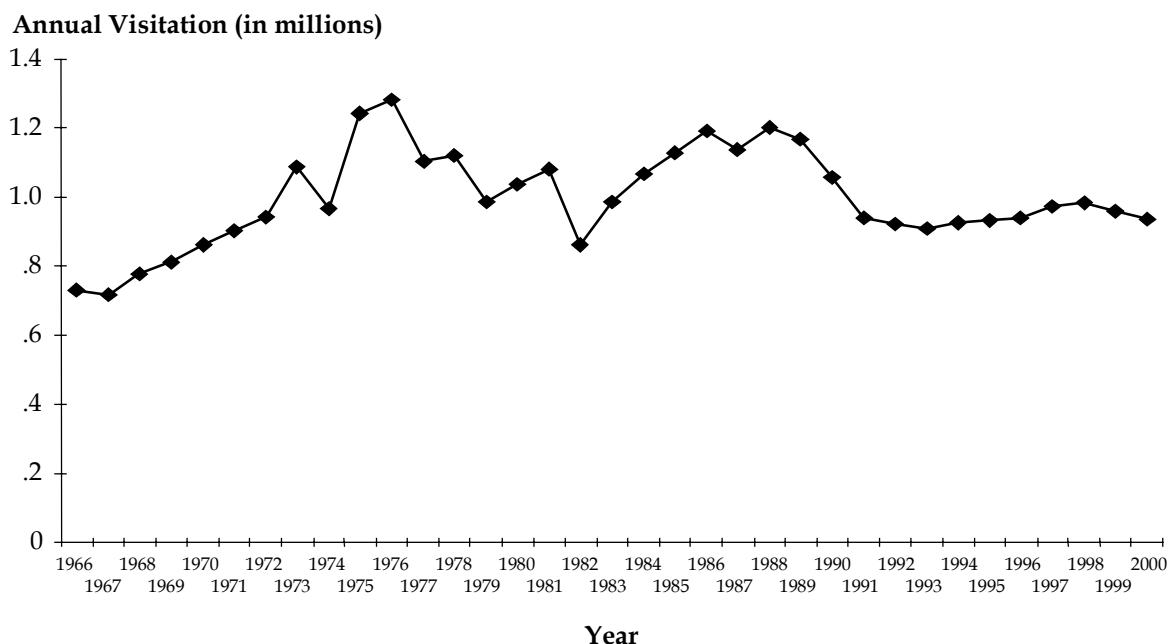


Table 5.2 Historical Paid Visitation at Colonial Williamsburg

Year	Colonial Williamsburg Foundation
1957	N/A
1958	N/A
1959	N/A
1960	N/A
1961	N/A
1962	N/A
1963	N/A
1964	N/A
1965	N/A
1966	731,843
1967	718,260
1968	775,746
1969	811,380
1970	861,923
1971	902,475
1972	941,648
1973	1,085,732
1974	964,534
1975	1,240,934
1976	1,280,977
1977	1,103,143
1978	1,119,100
1979	986,444
1980	1,037,401
1981	1,080,813
1982	860,045
1983	986,913
1984	1,067,466
1985	1,126,470
1986	1,191,685
1987	1,136,638
1988	1,201,324
1989	1,168,526
1990	1,056,989
1991	940,195
1992	921,888
1993	909,052
1994	925,729
1995	930,755
1996	938,079
1997	972,433
1998	983,100
1999	959,765
2000	935,750

Source: Colonial Williamsburg Foundation.

Figure 5.3 Annual Paid Visitation at Colonial Williamsburg
1966-2000



The annual paid visitation levels between 1977 and 1990 were all approximately 1.0 million persons per year with the notable exception of 1982 during a fuel supply crisis. In 1982, annual paid visitation was only 860,045 persons, a decrease of more than 200,000 from the previous year. However, paid visitation rebounded strongly in 1983 to 986,913 persons and continued to be in excess of 1.0 million persons through 1990. Since 1990, the annual paid visitation has been between approximately 910,000 and 980,000 persons. In general, paid visitation to Colonial Williamsburg has been relatively static over the past decade.

Based on anecdotal information provided by Colonial Williamsburg Foundation staff, it is estimated that the actual total visitation to the restored area may be as much as three to five times greater than the recorded paid visitation. That is, the total number of persons who walk through the area or purchase goods and services at the various shops and restaurants within the boundary of the restored area far exceeds the number of persons who actually purchase tickets to allow them to enter such attractions as the Governor's Palace and the Capitol Building.

Colonial National Historical Park

Colonial National Historical Park (NHP) is a unit of the National Park Service (NPS). It comprises three primary elements: Jamestown Island, the site of the first permanent English settlement in North America in 1607; Yorktown Battlefield, the site of the final major battle of the American Revolution in 1781; and the 23-mile Colonial Parkway linking Jamestown and Yorktown with Williamsburg. The administration of the historical

resources at Jamestown Island is shared by the National Park Service and by the Association for the Preservation of Virginia Antiquities (APVA).

Table 5.3 presents recorded annual visitation at the National Park Service's Yorktown Battlefield and Jamestown Island Visitor Centers over the period 1955 through 2000. Figures 5.4 and 5.5, respectively, display this data in the form of trend lines.

At the Yorktown Battlefield Visitor Center, annual visitation increased from 48,166 in 1955 and 55,483 in 1956 to 198,350 in 1957, the 350th Anniversary of the establishment of Jamestown and the opening of the existing visitor center facility. Thereafter, annual visitation at Yorktown steadily increased from a new base level of approximately 125,000 persons in the 1958-1960 period throughout the 1960s and 1970s. A visitation level at Yorktown of 365,630 was observed during the nation's Bicentennial Celebration in 1976. Throughout the remainder of the 1970s and into the 1980s, visitation was typically in the range of 250,000 to 350,000 annually. A "peak" visitation of 368,322 persons was observed in 1981, the 200th anniversary of the Battle of Yorktown.

Visitation at Yorktown has remained relatively constant throughout the period of the 1980s and 1990s, generally falling within a range of 300,000 to 350,000 annually. The historical "peak" annual visitation of 375,755 persons at the Yorktown Battlefield Visitor Center was recorded in 1994. Since that date, annual recorded visitation has been in a period of general decline, reaching a value of 304,930 persons in 1999, with a slight increase to 318,934 persons recorded in 2000.

Observed visitation levels at the NPS Jamestown Island Visitor Center have been somewhat different than those at Yorktown. From 70,082 persons in 1955 and 76,920 persons in 1956, visitation increased dramatically to 720,097 persons in 1957 during the 350th Anniversary of the establishment of Jamestown. This also marked the opening of the existing NPS Visitor Center on Jamestown Island. Although annual visitation dropped to 221,627 persons in 1958 and to 198,743 persons in 1959, a new "base" level of visitation had clearly been established following the 350th Anniversary activities.

Visitation to Jamestown Island experienced steady growth throughout the 1960s, with the post-1957 historical peak visitation of 601,824 being recorded in 1970. Although visitation remained in this range for the next several years, declines began to be observed in 1974 that have generally continued until today. From a level of 490,938 annual visits in 1976, the U.S. Bicentennial year, visitation generally declined to a level of 324,814 persons in 1998.

However, over the past several years, a modest increase in visitation has been observed at Jamestown Island. The annual visitation in 1999 of 331,880 persons represented a 2.2 percent increase over the 1998 level, and the 2000 visitation of 379,960 persons represented a 14.5 percent increase over the observed 1999 visitation.

Table 5.3 Historical Visitation at Colonial National Historical Park, 1955-2000

Year	Yorktown Visitor Center		Jamestown Visitor Center		Total Combined Visitation	Pct. Change Previous Year
	Annual Visitation	Pct. Change Previous Year	Annual Visitation	Pct. Change Previous Year		
1955	48,166	N/A	70,082	N/A	118,248	N/A
1956	55,483	15.2%	76,920	9.8%	132,403	12.0%
1957	198,350	257.5%	720,097	836.2%	918,450	593.7%
1958	129,620	-34.7%	221,627	-69.2%	351,247	-61.8%
1959	127,937	-1.3%	198,743	-10.3%	326,680	-7.0%
1960	128,267	0.3%	210,619	6.0%	338,886	3.7%
1961	145,997	13.8%	230,305	9.3%	376,302	11.0%
1962	158,489	8.6%	273,812	18.9%	432,301	14.9%
1963	183,293	15.7%	302,755	10.6%	486,048	12.4%
1964	165,086	-9.9%	334,984	10.6%	500,070	2.9%
1965	185,312	12.3%	378,428	13.0%	563,740	12.7%
1966	206,890	11.6%	431,344	14.0%	638,234	13.2%
1967	199,003	-3.8%	413,188	-4.2%	612,191	-4.1%
1968	189,586	-4.7%	370,701	-10.3%	560,287	-8.5%
1969	197,276	4.1%	435,847	17.6%	633,123	13.0%
1970	206,155	4.5%	601,824	38.1%	807,979	27.6%
1971	209,115	1.4%	557,219	-7.4%	766,334	-5.2%
1972	197,500	-5.6%	579,337	4.0%	776,837	1.4%
1973	286,246	44.9%	581,356	0.3%	867,602	11.7%
1974	199,665	-30.2%	420,795	-27.6%	620,460	-28.5%
1975	221,227	10.8%	286,498	-31.9%	507,725	-18.2%
1976	365,630	65.3%	490,938	71.4%	856,569	68.7%
1977	267,216	-26.9%	443,077	-9.7%	710,293	-17.1%
1978	275,879	3.2%	445,481	0.5%	721,360	1.6%
1979	261,914	-5.1%	399,288	-10.4%	661,202	-8.3%
1980	238,581	-8.9%	433,204	8.5%	671,785	1.6%
1981	368,322	54.4%	476,254	9.9%	844,577	25.7%
1982	281,756	-23.5%	428,266	-10.1%	710,022	-15.9%
1983	303,282	7.6%	409,319	-4.4%	712,601	0.4%
1984	342,068	12.8%	449,625	9.8%	791,693	11.1%
1985	343,202	0.3%	451,642	0.4%	794,844	0.4%
1986	355,391	3.6%	430,504	-4.7%	785,895	-1.1%
1987	331,651	-6.7%	379,996	-11.7%	711,647	-9.4%
1988	352,615	6.3%	383,078	0.8%	735,693	3.4%
1989	335,894	-4.7%	342,570	-10.6%	678,464	-7.8%
1990	338,509	0.8%	356,073	3.9%	694,582	2.4%
1991	365,437	8.0%	340,803	-4.3%	706,240	1.7%
1992	329,927	-9.7%	337,170	-1.1%	667,097	-5.5%
1993	310,858	-5.8%	301,284	-10.6%	612,142	-8.2%
1994	375,755	20.9%	308,746	2.5%	684,501	11.8%
1995	372,661	-0.8%	355,045	15.0%	727,706	6.3%
1996	306,869	-17.7%	368,411	3.8%	675,280	-7.2%
1997	319,274	4.0%	360,905	-2.0%	680,179	0.7%
1998	315,234	-1.3%	324,814	-10.0%	640,048	-5.9%
1999	304,930	-3.3%	331,880	2.2%	636,810	-0.5%
2000	318,934	4.6%	379,960	14.5%	698,894	9.7%
Totals	11,720,452		17,424,814		29,145,266	
1990-2000	3,658,388		3,765,091		7,423,479	

Source: National Park Service, Colonial National Historical Park.

Figure 5.4 Annual Visitation at Yorktown Battlefield
1955-2000

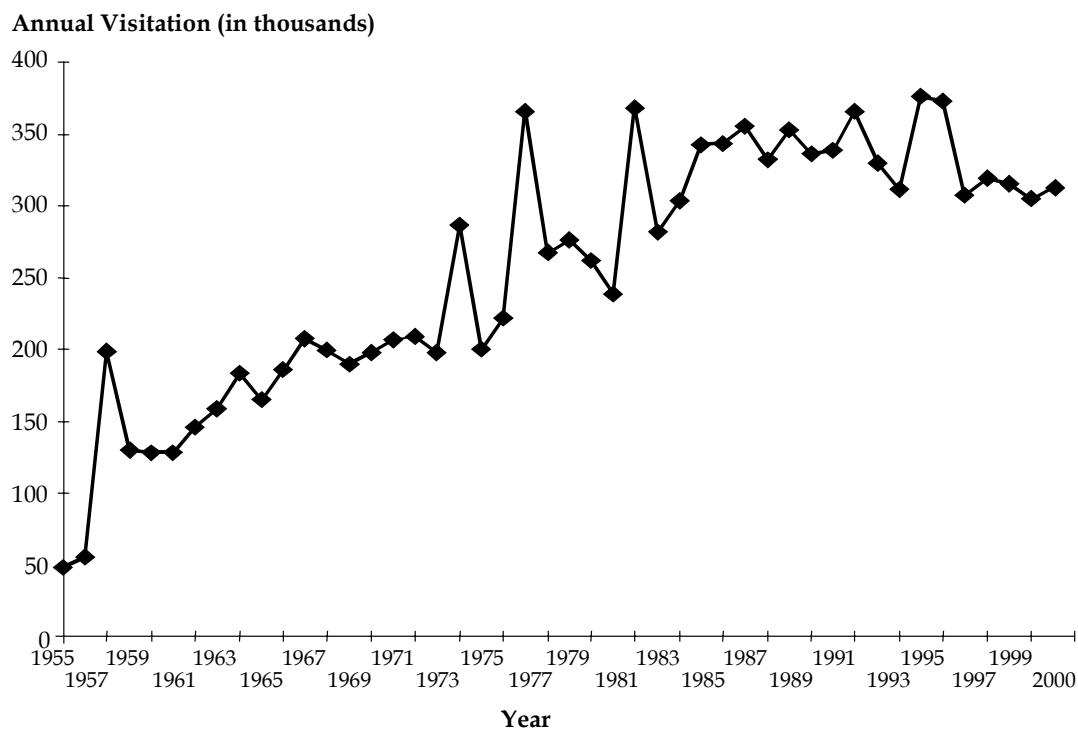


Figure 5.5 Annual Visitation at Jamestown Island
1955-2000



Virginia Tourism Corporation

It is reasonable to expect that there is some degree of overlap between the recorded attendance levels at each of these major attractions. A 1997 study of visitors to the Commonwealth of Virginia conducted by the Virginia Tourism Corporation (VTC)¹ obtained information on the visitation activities of the 613 visitors to the Williamsburg area from among the total of 3,227 “pleasure-related” travelers to the state that were surveyed.

Of the Williamsburg area visitors, 57.4 percent reported that they had “experienced” (that is, visited) Colonial Williamsburg, with 19.4 percent experiencing the Jamestown Settlement and 8.3 percent experiencing the Yorktown Victory Center attractions. It would thus appear that an expanded joint marketing program involving Colonial Williamsburg and the Jamestown-Yorktown Foundation could be beneficial to both parties. Interestingly, 41.0 percent of the survey respondents also indicated that they visited Busch Gardens and 39.5 percent indicated that they visited the Williamsburg Pottery outlet shops.

The Jamestown-Yorktown Foundation recently undertook a survey of visitors to the Settlement to determine the degree of interaction between the Settlement and the NPS/APVA managed facilities on Jamestown Island in connection with their ongoing planning of the “One Jamestown” concept.² A total of 589 visitor surveys were conducted at the Jamestown Settlement during the months of July and August 2000. Members of organized tour groups were not included in this survey. Some of the key findings of this survey included the following:

- “Just over 75 percent of those surveyed at Jamestown Settlement have never been to Jamestown Island prior to their current visit to the Historic Triangle area.”
- “Only 15 percent of those surveyed at the Settlement indicated that they had already visited the Jamestown Island prior to their visit to the Settlement, while 28 percent of those that have not gone yet indicated that they were planning on going there after their visit to Jamestown Settlement.”
- “‘No time to do both sites’ was the main reason given (66 percent) for not visiting Jamestown Island.”
- “37.8 percent of those who reported visiting both sites had visited Jamestown Island on a previous visit.”

¹Profile of the Williamsburg Visitor, Virginia Tourism Corporation’s 1997 *Virginia Visitor Study*; Richmond, Virginia; October 1998.

²2000 Summer Visitor Survey, Jamestown Settlement (Sections I-III), Supplementary Report Regarding Jamestown Island; Prepared by Dale Hall, Ph.D., Customer Research Specialist, Jamestown-Yorktown Foundation; January 18, 2001.

Of those persons surveyed at the Settlement who had also visited Jamestown Island, the quality of the overall experience at Jamestown Island was rated as either “Good” or “Excellent” by 93.2 percent of the respondents. Obviously, visitors to this area do indeed visit a number of different attractions during the course of their stay. Thus, the use of the historical visitation patterns of any one of the various major area attractions for estimating future visitation levels must be done with a high degree of caution.

Monthly Visitation Patterns

Another important consideration in the development of future peak visitation estimates is an understanding of variations in visitation patterns throughout the year. Table 5.4 presents the monthly visitation data for the National Park Service’s Yorktown and Jamestown Visitor Centers between 1995 and 2000.

As shown on Table 5.4, the months of April through August and the month of October are the most popular months to visit these two National Park Service operated attractions. During the peak summer period, average monthly visitation ranges between 10.6 percent and 14.8 percent at Yorktown and between 11.0 percent and 13.7 percent at Jamestown. On average, about 60 percent of the total annual visitation at both Yorktown and Jamestown take place during this five-month period. A second “peak” takes place during the month of October, when each site experiences about 11 percent of its total annual visitation.

Table 5.5 presents similar information on monthly visitation patterns provided by the Colonial Williamsburg Foundation and the Jamestown-Yorktown Foundation. The monthly visitation patterns at Colonial Williamsburg are somewhat similar to those observed at the NPS visitor centers; that is, monthly visitation rates of between 10 and 13 percent each month during the period of April through August, with a drop in September and a second “peak” in the month of October. At least for Colonial Williamsburg, another peak visitation month is observed during December of each year.

Monthly visitation patterns for the Jamestown Settlement generally parallel those for Colonial Williamsburg, with high visitation periods during the major tour group months of April and May and again during the major family visit months of July and August. Visitation during each of these months is in the range of 10 to 16 percent of annual attendance. These four months alone account for approximately 54 percent of total annual visitation at the Settlement.

Table 5.5 also illustrates the monthly visitation patterns of all “pleasure-related” visitors to Virginia and those just visiting the Williamsburg area as determined through the 1997 Virginia Tourism Corporation’s visitor survey. This information suggests a somewhat more uniform visitation rate over the majority of the year, with monthly percentages in excess of 10 percent observed only during the period of July through September.

Table 5.4 Monthly Variation in Visitation at Colonial NHP Visitor Centers, 1995-2000

Yorktown Visitor Center								
Month	Year						Average	Pct. of Year
	1995	1996	1997	1998	1999	2000		
January	9,572	3,116	7,000	9,518	7,195	6,048	7,075	2.2%
February	11,263	6,754	9,918	9,854	9,168	8,942	9,316	2.9%
March	26,322	17,034	24,285	19,809	18,780	21,225	21,243	6.6%
April	42,199	32,758	34,366	34,123	33,368	32,571	34,898	10.8%
May	41,956	33,737	35,347	30,888	30,098	30,758	33,797	10.5%
June	43,603	35,953	34,562	35,631	34,813	37,556	37,019	11.5%
July	57,835	44,626	44,716	46,947	45,028	49,411	48,094	14.9%
August	43,907	38,058	36,302	39,758	38,249	37,049	38,887	12.0%
September	32,846	24,359	25,216	26,402	22,638	27,105	26,428	8.2%
October	40,601	35,769	31,532	33,013	32,922	35,087	34,820	10.8%
November	17,162	20,387	20,612	19,649	19,726	20,605	19,690	6.1%
December	5,395	14,318	15,481	9,642	12,945	12,577	11,726	3.6%
Totals	372,661	306,869	319,337	315,234	304,930	318,934	322,994	100.0%

Jamestown Visitor Center								
Month	Year						Average	Pct. of Year
	1995	1996	1997	1998	1999	2000		
January	5,225	2,310	6,358	6,564	6,163	6,163	5,464	1.5%
February	7,861	5,965	8,004	8,105	9,086	10,875	8,316	2.4%
March	20,516	19,927	30,024	19,514	21,644	31,002	23,771	6.7%
April	40,190	41,942	40,555	36,988	38,048	57,745	42,578	12.0%
May	35,214	37,506	45,373	34,931	38,064	42,729	38,970	11.0%
June	44,267	40,020	44,382	37,816	39,709	45,555	41,958	11.9%
July	59,633	47,496	46,457	43,015	42,790	46,688	47,680	13.5%
August	49,265	43,493	39,092	38,078	38,796	36,349	40,846	11.6%
September	29,093	34,883	24,886	26,687	20,057	25,728	26,889	7.6%
October	37,338	44,592	34,669	35,819	34,591	37,868	37,480	10.6%
November	20,131	31,826	23,482	26,177	27,868	25,475	25,827	7.3%
December	6,312	18,451	17,623	11,120	15,064	12,783	13,559	3.8%
Totals	355,045	368,411	360,905	324,814	331,880	379,960	353,503	100.0%

Table 5.5 Monthly Visitation – Colonial Williamsburg Foundation and Virginia Tourism Commission Survey

Month	Monthly Visitation as a Percentage of Annual Totals								
	Colonial Williamsburg Foundation, 1994-1998 ¹						1997 VTC Survey ²		
	1994	1995	1996	1997	1998	Average	Settlement	Williamsburg	Statewide
January	0.94%	1.21%	0.88%	1.31%	1.20%	1.11%	6.00%	6.00%	7.00%
February	1.75%	1.89%	1.56%	1.99%	1.86%	1.81%	3.00%	5.00%	6.00%
March	5.45%	5.36%	6.08%	7.31%	5.38%	5.92%	5.00%	5.00%	6.00%
April	11.25%	11.82%	11.70%	10.32%	11.77%	11.37%	16.00%	8.00%	9.00%
May	9.89%	9.89%	10.47%	9.99%	10.43%	10.13%	10.00%	9.00%	8.00%
June	11.39%	11.39%	11.43%	11.74%	11.44%	11.48%	4.00%	8.00%	8.00%
July	13.48%	13.79%	13.37%	13.31%	12.91%	13.37%	16.00%	15.00%	11.00%
August	12.71%	11.72%	12.14%	12.03%	12.42%	12.20%	12.00%	11.00%	12.00%
September	7.33%	7.81%	6.40%	6.73%	6.93%	7.04%	9.00%	10.00%	7.00%
October	9.61%	9.04%	10.17%	10.18%	9.78%	9.76%	9.00%	8.00%	10.00%
November	6.04%	6.90%	5.39%	6.12%	6.35%	6.16%	8.00%	6.00%	8.00%
December	10.16%	9.18%	10.43%	8.96%	9.53%	9.65%	2.00%	8.00%	8.00%

Sources: 1) Colonial Williamsburg Foundation.

2) Virginia Tourism Corporation.

Mode of Access to the Region

Another important factor affecting visitation in the Jamestown-Williamsburg-Yorktown area is the number of visitors arriving by bus as opposed to private automobiles.

Information provided by the Jamestown-Yorktown Foundation indicates that the average party size at the Jamestown Settlement has ranged between 3.7 and 4.3 persons per group over the past several years. A 1998 study by the Foundation of the impact of visitation at its facilities on the local economy determined that approximately 94.3 percent of all non-school groups arrived via either personal or rental car. Overall, approximately 87 percent of all visitors to the Settlement arrive by either personal or rental car, with about 10 percent arriving via group tour or other bus.

Historically, Colonial National Historical Park has been viewed as a National Park Service unit with a higher than average visitation by bus groups. Table 5.6 illustrates the results of a review of the monthly Public Use Reports prepared by Park staff for 1997-1999.

As shown on Table 5.6, the visitor mode of access is significantly different between the Yorktown Battlefield and Jamestown Island. At the Yorktown Battlefield Visitor Center, visitors arriving by bus typically represent only five to seven percent of total annual visitation. During the spring and fall months when school and other organized tour groups most commonly visit the site, the bus access percentage can be as much as 10 to 15 percent of total visitation. Conversely, during the peak visitation months of June, July, and August the bus use percentage declines dramatically, with only two to five percent of total visitors arriving by bus.

Table 5.6 Historical Bus Utilization, 1997-1999

Yorktown Visitor Center												
Month	1997			1998			1999			Three-Year Average		
	Total Visitors	Bus Visitors	Percent of Total	Total Visitors	Bus Visitors	Percent of Total	Total Visitors	Bus Visitors	Percent of Total	Total Visitors	Bus Visitors	Percent of Total
January	7,000	175	2.5%	9,518	74	0.8%	7,195	670	9.3%	7,904	306	3.9%
February	9,918	770	7.8%	9,854	805	8.2%	9,168	574	6.3%	9,647	716	7.4%
March	24,285	1,505	6.2%	19,809	2,098	10.6%	18,780	2,353	12.5%	20,958	1,985	9.5%
April	34,366	2,800	8.1%	34,123	3,054	8.9%	33,368	3,098	9.3%	33,952	2,984	8.8%
May	35,347	3,640	10.3%	30,888	4,903	15.9%	30,098	4,138	13.7%	32,111	4,227	13.2%
June	34,562	1,295	3.7%	35,631	1,688	4.7%	34,813	1,868	5.4%	35,002	1,617	4.6%
July	44,716	595	1.3%	46,947	748	1.6%	45,028	743	1.7%	45,564	695	1.5%
August	36,302	945	2.6%	39,758	573	1.4%	38,249	823	2.2%	38,103	780	2.0%
September	25,216	1,955	7.8%	26,402	1,634	6.2%	22,638	1,084	4.8%	24,752	1,558	6.3%
October	31,532	2,070	6.6%	33,013	3,035	9.2%	32,922	2,743	8.3%	32,489	2,616	8.1%
November	20,612	1,470	7.1%	19,649	1,651	8.4%	19,726	1,599	8.1%	19,996	1,573	7.9%
December	15,418	431	2.8%	9,642	767	8.0%	12,945	589	4.6%	12,668	596	4.7%
Totals	319,274	17,651	5.5%	315,234	21,030	6.7%	304,930	20,282	6.7%	313,146	19,654	6.3%

Jamestown Visitor Center												
Month	1997			1998			1999			Three-Year Average		
	Total Visitors	Bus Visitors	Percent of Total	Total Visitors	Bus Visitors	Percent of Total	Total Visitors	Bus Visitors	Percent of Total	Total Visitors	Bus Visitors	Percent of Total
January	6,358	906	14.2%	6,564	385	5.9%	6,163	931	15.1%	6,362	741	11.6%
February	8,004	2,319	29.0%	8,105	3,684	45.5%	9,086	2,392	26.3%	8,398	2,798	33.3%
March	30,024	11,652	38.8%	19,514	8,792	45.1%	21,644	11,471	53.0%	23,727	10,638	44.8%
April	40,555	17,674	43.6%	36,988	18,410	49.8%	38,048	16,951	44.6%	38,530	17,678	45.9%
May	45,373	19,313	42.6%	34,931	21,414	61.3%	38,064	16,460	43.2%	39,456	19,062	48.3%
June	44,382	11,544	26.0%	37,816	9,544	25.2%	39,709	6,302	15.9%	40,636	9,130	22.5%
July	46,457	1,689	3.6%	43,015	930	2.2%	42,790	850	2.0%	44,087	1,156	2.6%
August	39,092	509	1.3%	38,078	380	1.0%	38,796	247	0.6%	38,655	379	1.0%
September	24,886	2,259	9.1%	26,687	1,934	7.2%	20,057	1,386	6.9%	23,877	1,860	7.8%
October	34,669	7,187	20.7%	35,819	7,398	20.7%	34,591	7,787	22.5%	35,026	7,457	21.3%
November	23,482	7,606	32.4%	26,177	12,581	48.1%	27,868	12,581	45.1%	25,842	10,923	42.3%
December	17,623	3,001	17.0%	11,120	2,404	21.6%	15,064	3,001	19.9%	14,602	2,802	19.2%
Totals	360,905	85,659	23.7%	324,814	87,856	27.0%	331,880	80,359	24.2%	339,200	84,625	24.9%

Source: National Park Service, Colonial National Historical Park; Analysis performed by BRW, Inc.

In contrast, over the past several years, the portion of total annual visitation arriving by bus at the NPS Jamestown Island Entrance Station has been in the range of 23 to 27 percent. The bus arrival percentage is particularly pronounced at Jamestown Island during the spring and fall months when a large percentage of visitors are school and other organized tour groups. During the February to May period, for example, it is not uncommon for 40 to 50 percent of total visitation to arrive by bus. During the fall months of October to December, the bus percentage can be as high as 40 to 50 percent as well.

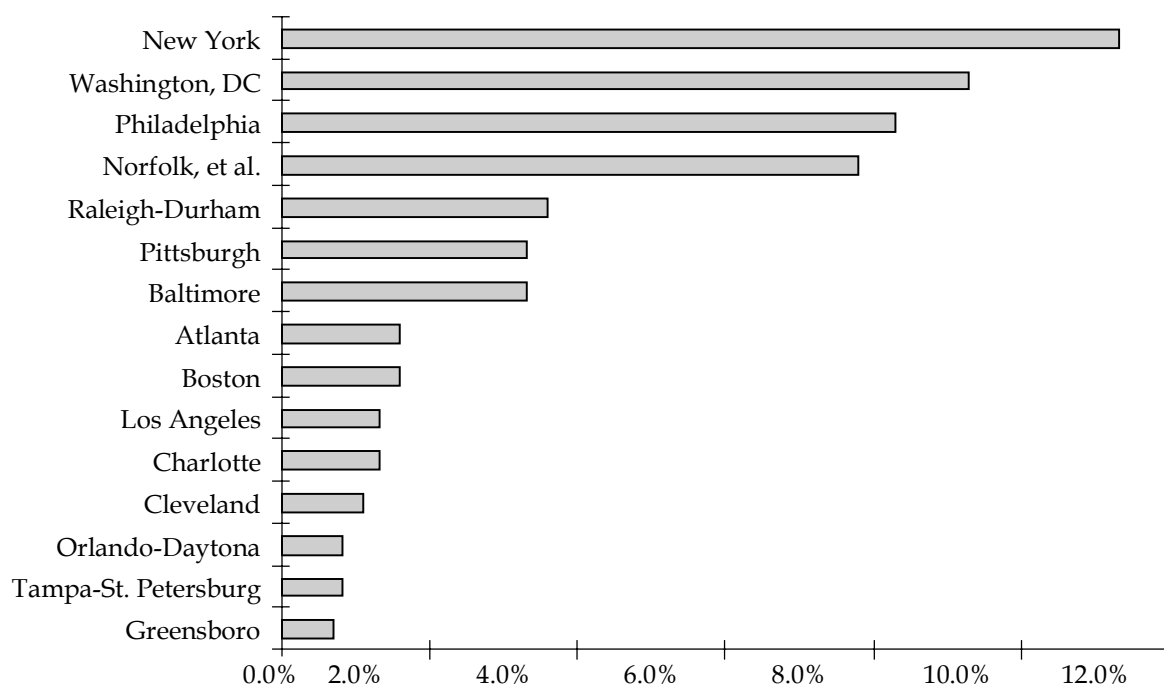
As was observed at the Yorktown Battlefield Visitor Center, the visitor arrival percentage by bus is dramatically lower during the peak numerical visitation months. While 20 to 25 percent of June visitation at Jamestown Island arrives by bus, less than five percent of visitors in the peak months of July and August use this mode.

The current situation thus appears to be one where tour groups make up a very large percentage of visitors to the facilities operated by the Jamestown-Yorktown Foundation and Colonial NHP during the spring and fall months, but a very small percentage of visitors during the peak summer visitation period. Information obtained through the 1997 Virginia Visitor Survey conducted by the Virginia Tourism Corporation determined that approximately eight percent of the total visitors to the Williamsburg area arrived via a group tour bus or another bus. About 87 percent traveled to the area in their personal automobile or a rental car, with 12 percent reporting that they arrived in Virginia by airplane.

Origins of Regional Visitors

The 1997 Virginia Visitor Study conducted by the Virginia Tourism Corporation estimated that Virginia residents represented approximately 20 percent of all “pleasure-related” visitors to the Williamsburg area. About eight percent of all visitors to the area reported that they were coming from the Norfolk metropolitan area. The VTC survey also found that approximately seven percent of the total visitors to the Williamsburg area originated from Maryland or North Carolina, for a combined total of about 14 percent from areas outside of Virginia but within a comfortable day’s drive of the region.

In terms of metropolitan areas, more than one-third of all visitors to the region reside in the Northeast and Mid-Atlantic States. Fewer than 15 percent resided in the southern United States (See Figure 5.6 below). This implies that traffic management plans should anticipate that the majority of long-distance trips to the area will come from the Northeast I-95 corridor in 2007.

Figure 5.6 Origin of Pleasure Trips to Williamsburg Area

■ 5.3 Future Visitation Projections

The observed fluctuations in annual paid visitation at Colonial National Historical Park, Colonial Williamsburg, the facilities operated by the Jamestown-Yorktown Foundation, and the other major visitor attractions in the Jamestown-Williamsburg-Yorktown area over the past two decades make it difficult to predict future visitation with a high degree of confidence. Variations in visitation levels such as those that have been observed reduce the precision with which statistical methods are able to project future trends.

For example, while the level of visitation at the Yorktown Battlefield NPS Visitor Center over the past 20 years has tended to generally exhibit positive growth, the visitation levels at the Jamestown Island NPS Visitor Center had exhibited a relatively consistent decline until the past two years (1999 and 2000). Over this same time period, annual visitation at the Jamestown-Yorktown Foundation's facilities at Jamestown Settlement and the Yorktown Victory Center have consistently exhibited consistent positive growth, while the annual paid attendance at Colonial Williamsburg has been essentially static or slightly declining for the past decade.

This degree of uncertainty and lack of precision require the user of projections made with these data to accommodate a wider range of possibilities in developing alternative transportation strategies. As shown below, a single projection of future conditions is not sufficient. Instead, a projection bracketed by high and low estimates is required.

While the direct use of past data creates a high level of uncertainty, future plans for the Jamestown-Williamsburg-Yorktown area also introduce the potential for significant changes in both visitation and visitor use patterns. Primary among these are the activities associated with the 400th Anniversary in 2007 of the establishment of the Jamestown colony.

Methodology to Predict Future “Baseline” Visitation

Recognizing both the high degree of variability in observed historical visitation patterns and the level of uncertainty associated with the effects of external activities on visitation at these attractions, a variety of alternative future growth projections were tested. Each of the projections was assessed in terms of being reasonable and defensible.

The first premise of “reasonableness” means several things: that the projected growth rate appears to be sustainable over the next eight to 10 years of the study horizon, and that the growth rate closely relates to or matches some other known trends, and can thus be easily explained to other audiences. The second premise of “defensibility” means that appropriate statistical methods have been applied to select growth rates in a logical and objective manner.

Various methods were tested to arrive at a future “base” visitation level for Colonial NHP and the other potential event venues to which adjustments could then be made to reflect the effects of other potential site-specific activities and events associated with the Jamestown 2007 Commemoration. The principal methodology utilized trend analysis of the observed visitation at Colonial NHP and the other visitor attractions cited above over varying lengths of time.

Table 5.7 presents several alternative future “base” visitation levels at the Jamestown Island and Yorktown NPS Visitor Centers. Trend line analysis using historically observed visitation levels was undertaken for four different time periods: 1990-2000, 1980-2000, 1970-2000, and 1958-2000. Also shown on Table 5.7 is the resulting average of the four different trend lines. Projections of base visitation levels were prepared on an annual basis for the period 2001-2010, with single-year extrapolation projections also made for the years 2015 and 2020.

Table 5.7 Projected “Base” Visitation Levels at Colonial NHP, 2001-2020

Yorktown Visitor Center					
Year	Forecasted Annual Visitation Levels				
	1990-2000 Trend	1980-2000 Trend	1970-2000 Trend	1958-2000 Trend	Average
1999	304,930	304,930	304,930	304,930	304,930
2000	318,934	318,934	318,934	318,934	318,934
2001	308,800	337,000	366,200	385,100	349,300
2002	304,800	337,700	370,100	390,500	350,800
2003	300,900	338,400	374,000	395,900	352,300
2004	296,900	339,100	377,900	401,400	353,800
2005	292,900	339,900	381,900	406,800	355,400
2006	289,000	340,600	385,800	412,200	356,900
2007	285,000	341,300	389,700	417,700	358,400
2008	281,000	342,000	393,700	423,100	360,000
2009	277,100	342,700	397,600	428,500	361,500
2010	273,100	343,400	421,200	434,000	363,000
2015	253,300	347,000	421,200	461,100	370,700
2020	233,500	350,600	440,800	488,300	378,300
Jamestown Visitor Center					
Year	Forecasted Annual Visitation Levels				
	1990-2000 Trend	1980-2000 Trend	1970-2000 Trend	1958-2000 Trend	Average
1999	331,880	331,880	331,880	331,880	331,880
2000	379,960	379,960	379,960	379,960	379,960
2001	354,600	310,200	299,600	397,000	340,400
2002	356,600	304,000	292,600	397,500	337,700
2003	358,700	297,800	285,600	398,100	335,100
2004	360,700	291,500	278,600	398,600	332,400
2005	362,800	285,300	271,600	399,100	329,700
2006	364,800	279,100	264,600	399,700	327,100
2007	366,900	272,900	257,600	400,200	324,400
2008	369,900	266,700	250,600	400,800	322,000
2009	371,000	260,500	243,600	401,300	319,100
2010	373,000	254,300	236,600	401,900	316,500
2015	383,300	223,200	201,700	404,600	303,200
2020	393,500	192,100	166,700	407,300	289,900

Note: 1999 and 2001 values represent recorded visitation by National Park Service staff; values for 2001-2020 are estimates by Cambridge Systematics, Inc.

Depending upon the trend line period used as the basis for future-year forecasts, the results varied rather significantly. For example, at the Yorktown Battlefield Visitor Center the use of the historical visitation levels over the 1990-2000 time period resulted in future projections of a slight long-term decline in currently observed visitation levels, from 304,930 persons in 1999 and 318,934 persons in 2000 to an estimated 292,900 persons in 2005, 285,000 persons in 2007, and a continuing projected decline to 273,100 persons in 2010. Conversely, use of the longer term 1980-2000 time period trend line data resulted in future projections of a moderate increase in visitation, from observed values of 304,930 persons in 1999 and 318,934 persons in 2000 to an estimated 339,900 persons in 2005, 341,300 persons in 2007, and a continuing increase to 343,400 persons in 2010. The average of the four trend line analyses resulted in a positive change in visitation levels, with projections of 355,400 persons in 2005, 358,400 persons in 2007, and a continuing increase to 363,000 persons in 2010.

The resulting average value for the projected “base” visitation in 2007 at the NPS Yorktown Battlefield Visitor Center was 358,400 persons. This represents about a 12.4 percent increase over the observed visitation level of 318,934 persons in 2000.

A similar variability in results using this trend line analysis approach was observed at the Jamestown Island Visitor Center. In comparison to an actual visitation level of 331,880 persons in 1999 and 379,960 persons in 2000, use of the 1990-2000 trend data resulted in future projections of essentially no growth, with an estimated 362,800 persons in 2005, 366,900 persons in 2007, and 373,000 persons in 2010. Conversely, application of the 1958-2000 time period trend line data resulted in future projections of a relatively modest, but continual increase in visitation, from the observed levels of 331,880 persons in 1999 and 379,960 persons in 2000 to 399,100 persons in 2005, 400,200 persons in 2007, and a projected continuing increase to 401,900 persons in 2010. The average of the four trend line analyses resulted in an overall negative change in visitation levels, with projections of 329,700 persons in 2005 and 316,500 persons in 2010. The average value for projected visitation in 2007 at the Jamestown Island Visitor Center was 324,400. This represents about a 2.3 percent decrease relative to the observed visitation level of 331,880 persons in 1999 and a decrease of approximately 14.6 percent relative to the observed visitation of 379,960 persons in 2000.

If only the two positive visitation projections using the 1990-2000 and 1958-2000 trend lines are considered, the anticipated “baseline” visitation at the NPS Jamestown Island site in 2007 would be approximately 383,600 persons. This is approximately 15.6 percent greater than the observed 1999 annual visitation and approximately 0.9 percent greater than the observed 2000 annual visitation at Jamestown Island.

Applying a 1976 U.S. Bicentennial magnitude surcharge of approximately 69 percent to this average estimated 2007 baseline visitation projection of 383,600 persons results in an adjusted estimated 2007 visitation level at Jamestown Island of approximately 648,300 persons. This is approximately 71 percent greater than the observed visitation of 379,960 persons in 2000. By comparison, the observed visitation at Jamestown Island in 1976 was 420,938 persons and the highest annual visitation ever recorded at this site was the 720,097 persons who visited in 1957 at the time of the 350th Anniversary Commemoration.

If a 1957 Jamestown 350th Anniversary magnitude surcharge of approximately 595 percent were to be applied to the average estimated 2007 baseline visitation projection of 383,600 persons, the result would be an estimated 2007 visitation projection at Jamestown Island of approximately 2,282,400 persons. This value appears to be grossly out of line with any other historical data and is thus extremely unlikely to be observed.

For initial planning purposes, it is thus suggested that a projected visitation level of approximately 648,300 persons be assumed at Jamestown Island in 2007.

A similar trend line analysis was undertaken using historical visitation at Colonial Williamsburg, the Jamestown Settlement, and the Yorktown Victory Center. The results of this analysis are presented on Table 5.8. For these three attractions, observed trends in visitation over the periods 1990-2000, 1980-2000, and 1970-2000 were employed.

In the case of Colonial Williamsburg, the projected “base” visitation over the period 2001-2010 was estimated to be essentially unchanged from that actually observed in 1999 and 2000 of, respectively, 959,765 and 935,750 paid admissions. Using the 1990-2000 trend data, the projected 2007 attendance was 929,800. This value is approximately 0.6 percent lower than the observed 2000 visitation. Using the 1980-2000 trend data, the projected 2007 attendance was estimated to be 894,100 or about a 4.5 percent decrease relative to 2000. Use of the 1970-2000 trend data resulted in a projected 2007 attendance of 965,900 or about a 3.2 percent increase relative to the actually observed visitation in 2000. The average projected 2007 attendance at Colonial Williamsburg using the three sets of trend line data was 929,933. This average value is approximately 0.6 percent lower than the observed 2000 visitation.

Similarly, for the Jamestown Settlement, the use of the three sets of trend line data yielded a mixture of positive and negative attendance projections relative to present day observations. The use of the 1990-2000 trend line data resulted in an estimated 2007 paid visitation of 633,800 or about a 23.6 percent increase in comparison to the observed 2000 paid visitation of 512,613 persons. Use of the 1980-2000 trend line data produced an estimated 2007 paid visitation of 582,900 or about a 13.7 percent increase relative to 2000. The use of the long-term 1970-2000 trend line data resulted in a projected 2007 visitation level of 429,800 persons or about a 16.2 percent decrease relative to the actual 2000 observed visitation. The average projected 2007 paid visitation at the Jamestown Settlement using the three sets of trend line data was 548,833. This represents approximately a 7.1 percent increase relative to the observed paid visitation in 2000.

The application of the three sets of trend line data for the Yorktown Victory Center resulted in consistently positive forecasts for 2007. The 1990 trend line data produced an estimated 2007 paid visitation level of 280,200 persons. This represents about a 40.8 percent increase relative to 2000. Similarly, the 1980-2000 trend line data produced an estimated 2007 visitation level of 225,400 or about a 13.1 percent increase relative to 2000. Finally, the use of trend line data for the period 1976 (the date of opening for the Yorktown Victory Center) through 2000, resulted in an estimated 2007 paid attendance of 210,700. This is about a 5.9 percent increase relative to 2000.

Table 5.8 Projected “Base” Visitation at Colonial Williamsburg, Jamestown Settlement, and Yorktown Victory Center

Colonial Williamsburg				
Year	Forecasted Annual Visitation Levels			
	1990-2000 Trend	1980-2000 Trend	1970-2000 Trend	Average
1999	959,765	959,765	959,765	959,765
2000	935,750	935,750	935,750	935,750
2001	941,000	937,000	982,400	953,467
2002	939,100	929,900	979,700	949,567
2003	937,200	922,700	976,900	945,600
2004	935,400	915,600	974,200	941,733
2005	933,500	908,400	971,400	937,767
2006	931,600	901,200	968,700	933,833
2007	929,800	894,100	965,900	929,933
2008	927,900	886,900	963,200	926,000
2009	926,000	879,800	960,400	922,067
2010	924,200	872,600	957,700	918,167
Jamestown Settlement				
Year	Forecasted Annual Visitation Levels			
	1990-2000 Trend	1980-2000 Trend	1970-2000 Trend	Average
1999	479,898	479,898	479,898	479,898
2000	512,613	512,613	512,613	512,613
2001	528,500	500,700	408,600	479,267
2002	546,100	514,400	412,200	490,900
2003	563,600	528,100	415,700	502,467
2004	581,200	541,800	419,200	514,067
2005	598,700	555,500	422,800	525,667
2006	616,300	569,200	426,300	537,267
2007	633,800	582,900	429,800	548,833
2008	651,300	596,600	433,400	560,433
2009	668,900	610,300	436,900	572,033
2010	686,400	624,000	440,400	583,600
Yorktown Victory Center				
Year	Forecasted Annual Visitation Levels			
	1990-2000 Trend	1980-2000 Trend	1976-2000 Trend	Average
1999	189,456	189,456	189,456	189,456
2000	198,961	198,961	198,961	198,961
2001	215,100	188,300	179,800	194,400
2002	226,000	194,500	185,000	201,833
2003	236,800	200,700	190,100	209,200
2004	247,700	206,800	195,300	216,600
2005	258,500	213,000	200,400	223,967
2006	269,400	219,200	205,600	231,400
2007	280,200	225,400	210,700	238,767
2008	291,100	231,600	215,900	246,200
2009	301,900	237,700	221,000	253,533
2010	312,800	243,900	226,200	260,967

Note: 1999 and 2000 values are actual recorded observations; values for 2001-2010 are estimates by Cambridge Systematics, Inc.

Given the wide range of variability in the results of this analysis, it is rather difficult to develop a consensus view on what the “background” or “base” visitation levels in the area are likely to be in 2007. However, the comparison of these trend line projections to some of the independent visitation projections prepared by others is helpful in this regard.

Table 5.9 below presents a comparison between the two positive trend line projections for visitation at the Jamestown Settlement prepared by Cambridge Systematics, Inc. staff with those prepared independently by the staff of the Jamestown-Yorktown Foundation.

Table 5.9 Comparison of Visitation Projections for Jamestown Settlement

Year ¹	1990-2000 Trend Line Estimate by CS	1980-2000 Trend Line Estimate by CS	Independent Estimate by JYF Staff ²
2000	512,613	512,613	512,613
2001	528,500	500,700	N/A
2002	546,100	514,400	N/A
2003	563,600	528,100	N/A
2004	581,200	541,800	529,959
2005	598,700	555,500	N/A
2006	616,300	569,200	N/A
2007	633,800	582,900	1,000,000
2008	651,300	596,600	N/A
2009	668,900	610,300	N/A
2010	686,400	624,000	596,820

Notes: 1) 2000 values are actual observations; values for 2001-2010 are estimates by Cambridge Systematics, Inc. staff without consideration of Jamestown 2007 activities.

2) JYF Staff estimates include anticipated impact of Jamestown 2007 activities.

The average of the two “baseline” projections for paid visitation made by Cambridge Systematics, Inc., staff for the Jamestown Settlement in 2007 is 608,350 persons. The independently prepared paid visitation estimate developed by the staff of the Jamestown-Yorktown Foundation of 1,000,000 persons in 2007 is approximately 64 percent greater than the average “baseline” projection. This “surcharge” value is similar to that which was observed in connection with the U.S. Bicentennial in 1976. Given the anticipated level of special activities likely to be associated with the Jamestown 2007 Commemoration at the Settlement, this projected attendance value of 1,000,000 persons appears to be reasonable.

The best assumption that can be made is that a modest degree of growth in attendance will be observed over the next several years in response to the planned marketing activities associated with the Jamestown 400th Anniversary Commemoration. Although a precise estimate cannot be made, it would appear reasonable to anticipate a five to 10 percent increase in background visitation activity in the area over the next five to seven years.

The transportation implications of such a modest anticipated increase in visitation levels would also seem to be relatively modest. With the existing transportation system having been able to adequately accommodate historical visitation levels at many of these attractions that were substantially greater than those observed in recent years, no significant problems are expected to be encountered on a typical day-by-day basis during 2007. However, as described later in this report, the impacts of large-scale commemorative activities with a limited duration are likely to be much more significant.

6.0 Transportation Inventory

This section of the Project Final Report describes the existing and currently planned transportation infrastructure in the Jamestown-Williamsburg-Yorktown region. The person transportation modes discussed below include highways, public transit, aviation, and marine operations. This information has been compiled through a review of existing planning documents produced by the Virginia Department of Transportation, the Hampton Roads Planning District Commission, the city of Williamsburg, governments of James City County and York County, Hampton Roads Transit, and a number of other stakeholders.

■ 6.1 Highway

Private or rental vehicles and chartered tour buses are the primary modes of transportation to the Jamestown-Williamsburg-Yorktown area. The location of the Historic Triangle, straddling the peninsula between the James and York Rivers in southeast Virginia, tends to limit the number of access routes to this portion of the Hampton Roads region. (See Figure 6.1.)

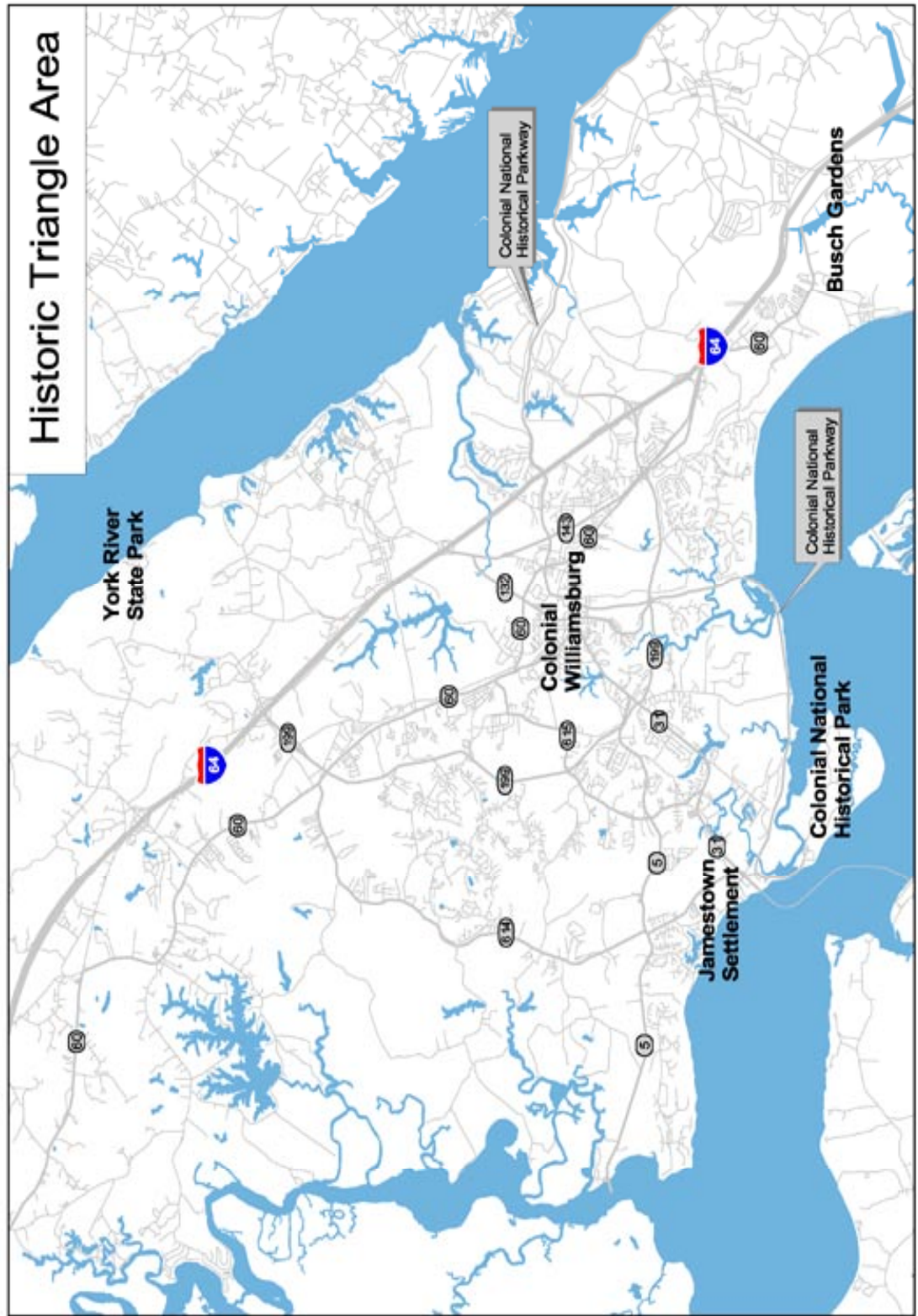
Roadways and Traffic Circulation Patterns

Interstate Route 64 (I-64) is the primary regional access route to the Jamestown-Williamsburg-Yorktown area. This facility links the area with the Richmond region and the I-95 corridor to the north and west and to the Norfolk-Virginia Beach-Hampton-Newport News region to the south. The Richmond area is about one hour travel time from Williamsburg via I-64, with the Washington, D.C., metropolitan area an additional one and one-half hours to the north via I-95. The Hampton Roads Bridge/Tunnel linking the north and south sides of the Tidewater region is about 30 minutes south and east of Williamsburg via I-64.

U.S. Route 60 parallels I-64 along the peninsula from Richmond to Newport News/Hampton.

U.S. Route 17 links the peninsula area with the communities on the north side of the York River. U.S. Route 17 continues to the north and west and intersects the I-95 corridor at Fredericksburg, Virginia.

Figure 6.1 Historic Triangle Area



Virginia Route 31 links the Historic Triangle area with Surry County and the other communities on the south side of the James River via the VDOT operated Jamestown-Scotland passenger and vehicle ferry. Secondary access to the region is provided by **Virginia Route 5**, which parallels the north shore of the James River from Richmond to Williamsburg.

I-64 is a four-lane, rural interstate highway, with numerous exits provided in the Williamsburg area. The Virginia Department of Transportation (VDOT) is planning to widen and reconstruct the I-64 corridor between Richmond and Hampton Roads to a six-to eight-lane cross section. Much of this work has either been completed or is currently underway in the cities of Newport News and Hampton to the south of Williamsburg. The I-64 widening from Williamsburg north to the Richmond area is planned to begin in the next several years, with completion not expected until sometime after 2007. The recently completed Grove interchange, located just east of the I-64/Route 199 east interchange, provides a direct connection from I-64 to U.S. Route 60 in the area of Busch Gardens.

Present day average annual traffic volumes along the sections of I-64 in the Williamsburg area range from approximately 46,000 vehicles per day north of Williamsburg to approximately 60,000 vehicles per day at the Williamsburg/Newport News corporate limits. During the peak summer visitation period, it is not uncommon to experience daily traffic volumes that are 25 to 30 percent greater than the average annual daily volumes. The traffic stream includes a significant percentage of trucks, representing approximately 15 to 20 percent of total volume on an average daily basis.

In the areas to the north and south of the city of Williamsburg, **U.S. Route 60** is a four-lane, median-divided arterial highway. Within the corporate limits of Williamsburg, the cross section of U.S. Route 60 varies from a four-lane, median-divided arterial highway to a five-lane urban arterial street with a center turning lane. Through the city, the capacity of U.S. Route 60 is governed primarily by signalized intersections. A number of these locations are programmed for improvements such as the addition of dedicated turn lanes over the next three to five years. There are no plans for any changes to the basic cross section of U.S. Route 60 in the area for the foreseeable future. Average daily traffic volumes along these sections of U.S. Route 60 vary between approximately 20,000 and 25,000 vehicles per day.

The general cross section of **U.S. Route 17** in the area is a four-lane, median-divided arterial highway from Gloucester County to Newport News. The Virginia DOT has proposed widening Route 17 to six lanes in York County to the Colonial Parkway, and at selected intersection approaches throughout the county. Preliminary engineering studies are currently underway for this project, which would pass through the Yorktown Battlefield unit of Colonial NHP. Average daily traffic volumes on the Coleman Memorial Bridge crossing the York River are approximately 28,000 vehicles per day.

Virginia Route 31 links Jamestown with the city of Williamsburg and has served travel in this corridor for nearly 300 years. Via the VDOT operated Jamestown-Scotland vehicle and passenger ferry across the James River, Route 31 links Jamestown with Surry County and the other communities on the south side of the James River. Jamestown Road is a four-lane undivided road from John Tyler Lane to Lake Matoaka, from that point to the Jamestown ferry terminal, Route 31 transitions to a basic two-lane rural highway cross

section, with one travel lane in each direction and narrow shoulders. The current average daily traffic volume on the section of Route 31 in the vicinity of Jamestown Island is approximately 3,500 vehicles per day.

Virginia Route 5 links Jamestown and Williamsburg with Richmond along the north shore of the James River. This is one of the oldest and most historic roadways in the region, with many segments of this route following alignments established more than 300 years ago. Route 5 is a two-lane rural highway over most of its length from the city of Williamsburg corporate limits to the city of Richmond. The average daily traffic volume on the section of Route 5 just west of Jamestown is approximately 7,500 vehicles per day.

A well-developed network of arterial streets and secondary routes links the regional access routes described above to the major visitor attractions in the Historic Triangle area. For example, **Virginia Route 199** is a four-lane arterial highway that functions as a western bypass for the city of Williamsburg, and connects I-64 to the north of Williamsburg with Routes 5, 31, 60, and 143 before again connecting with I-64 to the south of Williamsburg. The easterly extension of Route 199 is designated Virginia Secondary Route 641 and connects directly with the Colonial Parkway at the entrance to the U.S. Naval Supply Center Cheatham Annex.

Similarly, **Virginia Route 238** and **Virginia Route 105** connect the U.S. Route 17 corridor in the vicinity of the Colonial National Historical Park's Yorktown Battlefield unit with interchanges along I-64 near the York County/Newport News corporate limits. Likewise, **Virginia Secondary Route 614** connects Virginia Route 31 with Virginia Route 5 at the site of Colonial National Historical Park's currently undeveloped Greensprings property. **Virginia Route 359** intersects with Route 614 and Route 31 at this same location to provide both the primary entry point to the Jamestown-Yorktown Foundation's Jamestown Settlement facility and to connect Route 31 with the Colonial Parkway.

Mobility Issues

In general, it appears that there are no major mobility issues facing the Williamsburg area at this time. A relatively ubiquitous highway system allows the majority of residents and visitors to the area to travel throughout the community at times and locations of their choice. Recently completed system improvements such as the widening and reconstruction of the Coleman Bridge carrying U.S. Route 17 over the York River have contributed to enhanced mobility within the region.

Traffic congestion is generally localized in nature, and is observed primarily during morning and afternoon peak travel periods and during summer weekend periods.

Circulation Issues

As noted above, traffic congestion in the Williamsburg area tends to be localized in nature. On a typical weekday basis over the course of the year, major commuter routes such as State Route 5, State Route 31, State Route 199, and U.S. Route 60 experience congestion

primarily during morning and afternoon peak travel periods. The presence of the CSX railroad mainline tracks between U.S. Route 60 and State Route 143 result in limited opportunities to cross the railroad.

During the peak summer tourist season, locations such as the interchange of State Route 199 with U.S. Route 60 near the entrance to the Busch Gardens theme park experience significant levels of traffic congestion. The streets in and around the Merchant's Square shopping area in downtown Williamsburg and the U.S. Route 60 commercial corridor west of Williamsburg also experience more congestion during peak visitation periods.

Planned and Programmed Improvements

The Virginia Department of Transportation (VDOT), in association with the local jurisdictions has defined a program of highway improvements to be undertaken over the next five to 10 years. From a regional perspective, the most significant of these are the plans to widen and reconstruct I-64 between the Richmond and Newport News/Hampton urban areas and the completion of the State Route 199 bypass around the west side of Williamsburg. VDOT proposes to widen and reconstruct I-64 from its current four-lane cross section to a six- to eight-lane cross section from the area of the I-64/I-295 interchange east of Richmond to the I-64/I-664 interchange in the city of Hampton. Much of the work in the cities of Hampton and Newport News has either been recently completed or is underway at this time. Current schedules call for the I-64 improvements from Newport News west to Richmond to enter construction in the next few years, with completion anticipated over the entire corridor in approximately 2010.

While all of State Route 199 between I-64 north and I-64 south of Williamsburg has been opened to traffic, some sections are still only two lanes, while the remainder has a four-lane cross section. VDOT plans to begin widening the remaining two-lane sections over the next few years, with completion of these improvements anticipated by about 2005 or 2006.

A number of other more minor, but still important, improvements to the highway system in the Williamsburg area are planned to take place over the next three to five years. These include improvements to several of the signalized intersections along U.S. Route 60 in Williamsburg, and the construction of Monticello Avenue, a secondary road that will run parallel to State Route 5 in James City County west of the city of Williamsburg. Turn lanes and signalized intersections have been proposed for Waltz Farm Drive, which intersects Route 60 at Patriot Plaza in Williamsburg. Lastly, Patriot Lane in Williamsburg is also programmed for turn lanes.

A complete listing of all of the proposed improvements to the Interstate and Primary System highways in the Tidewater Region can be found in the current edition of the VDOT Transportation Development Plan.¹

■ 6.2 Local Bus Transit

In acknowledgment of the relatively limited changes to the existing highway network that are planned to be in place by 2007, a significant percentage of local visitor traffic in the region will probably have to be transported on public transit systems in order to minimize vehicular congestion. This element of Section 6.0 describes the existing public bus systems in the study area and the current plans of these agencies for service improvements over the next five to seven years.

James City County Transit

James City County Transit (JCCT) provides public transportation services in James City County, the city of Williamsburg, and the Bruton District of York County. There are three fixed routes provided as well as paratransit services for persons with disabilities. JCCT also oversees the Williamsburg Area Visitors Shuttle (*Relax and Ride*), which is a seasonal tourist-oriented service operated by Hampton Roads Transit under a contractual arrangement with James City County. The *Relax and Ride* service presently operates between Memorial Day and Labor Day.

JCCT currently provides a rather basic level of service and has planned an incremental program of service expansion to be implemented from FY2001 to FY2006. This expansion should bring the system up to a level of service that will be able to handle a large portion of the increased background transit use that will likely occur throughout 2007.

JCCT is a county-administered and -operated service that is organized under the James City County Department of Community Services. The county employs a full-time transit administrator to oversee the program. He is assisted by a full-time transit assistant/secretary. JCCT has also recently hired an administrative support person (20 hours per week) through a temporary agency to help improve the timeliness of the grant management and reporting functions. This position is expected to be converted into a full-time position as the system grows. There will also be an operations manager position established when JCCT begins to operate the routes now operated by the College of William and Mary. This transition is projected to occur in FY2002.

¹The Virginia Transportation Development Plan; Virginia Department of Transportation; Richmond, VA; October 2000.

Operations

JCCT operates out of a James City County-owned facility on Tewning Road. There are three full-time drivers: one lead driver and two fixed-route drivers. There are also six part-time drivers (30 hours per week). Four of the part-time drivers are assigned to the fixed routes and two are assigned to the ADA paratransit service. The *Relax and Ride* operation is completely separate, with the vehicles and drivers based at Hampton Roads Transit in Hampton. When the system begins to operate the William and Mary services, JCCT will add four full-time drivers. Some of the part-time drivers will also likely be converted to full-time drivers.

Maintenance

Routine maintenance is currently provided by the county's Fleet Maintenance Department. JCCT has recently conducted a bid process to hire a private vendor to provide maintenance services for the transit system. It is expected that the private vendor will be able to improve the maintenance function by focusing exclusively on the transit vehicles and by working on the vehicles in the evening when they are not in operation. The vendor is the same one used by Colonial Williamsburg (CW) and there may be an opportunity to share a new vehicle maintenance and storage facility, which is currently being built by CW.

Vehicles

The JCCT fleet comprises five 30-foot buses, two body-on-chassis vehicles, and four vans. Two of the five buses are lift-equipped, as are the body-on-chassis vehicles and all four of the vans. In FY 2001, JCCT will be replacing one of the vans. In FY2002, 10 new vehicles are expected, three of which are replacement vehicles and seven of which are for the *Relax and Ride* service. The current *Relax and Ride* vehicles are owned by Hampton Roads Transit and were rehabilitated through funds received by James City County through a CMAQ grant. By 2007 it is likely that the system will own a fleet of approximately 32 vehicles, with between 16 and 25 of them on the road at any one time.

Hours and Days of Service

JCCT's three regular routes and the ADA paratransit service operate Monday through Saturday from 6:15 a.m. to 12:15 p.m. and from 2:00 p.m. to 6:20 p.m. Services do not operate on New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas Eve, or Christmas Day. The *Relax and Ride* service operates from May 22 through September 7. The hours of service are 9:00 a.m. to 10:00 p.m. By 2007, the hours of operation for JCCT are projected to be Monday through Saturday from 5:30 a.m. to 9:30 p.m. and Sundays from 8:00 a.m. to 6:00 p.m. Selected routes that serve tourist areas will operate daily from 6:00 a.m. to 10:00 p.m. during the summer months.

Current Fixed Routes

JCCT's fixed routes are oriented toward providing access to human service agency offices, health services, shopping, educational facilities, employment sites, and tourist attractions in the service area. The three routes are: the Route 60 Corridor; the Centerville Route; and the Grove Route. The routes meet at Merchant's Square in Williamsburg to provide transfer opportunities.

A new route that is oriented toward shopping areas in Williamsburg and James City County is scheduled to begin service in April 2001. The Monticello Avenue route will provide service from Williamsburg (including the College of William and Mary) to the Monticello Marketplace Shopping Center, serving several other shopping destinations along the way.

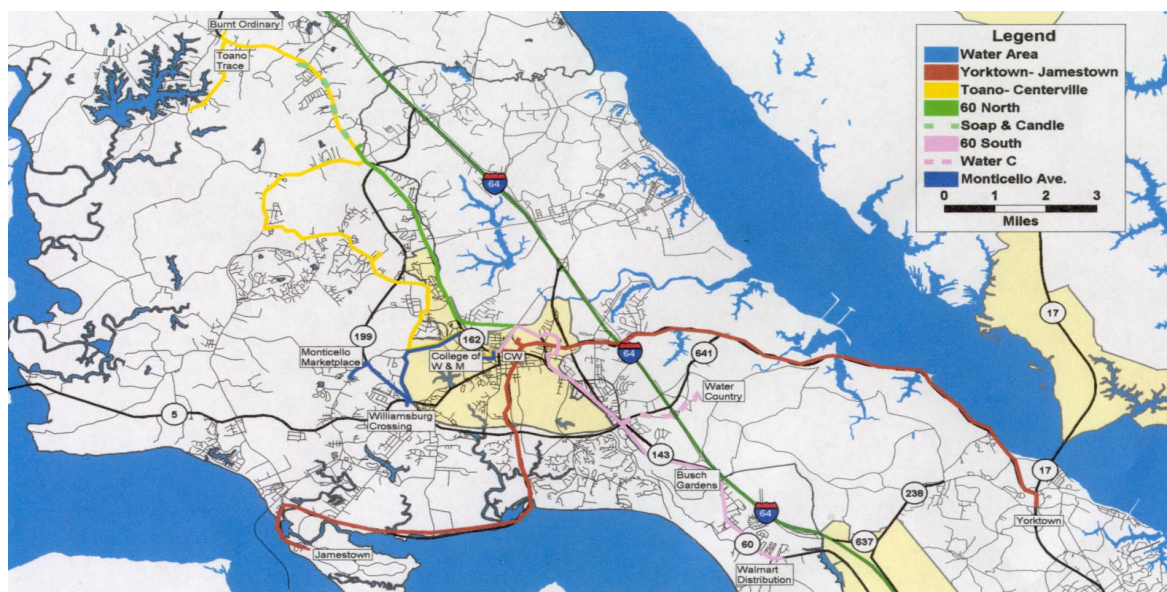
The *Relax and Ride* services are oriented to providing transit services to visitors during the peak tourist season (Memorial Day to Labor Day). There are two routes that provide service under the *Relax and Ride* service. These are the Green Route and the Gold Route. The Green Route serves the Route 60 West Corridor from Williamsburg Pottery through Williamsburg, and then on to Busch Gardens and Water Country. The Gold Route serves the tourist-oriented hotels and motels along Second Street, Parkway Drive, Capitol Landing Road, and Bypass Road. The routes meet for transfer opportunities at Merchant's Square.

Future Routes

A route restructuring is a component of the Long-Range Public Transportation Plan. The new route structure is shown in Figure 6.2. JCCT plans to implement the new route structure in 2003, coinciding with the completion of the renovation of the Williamsburg Transportation Center. The new routes will provide integration between the existing regular fixed-route services and the current *Relax and Ride* service. The new routes will also provide more direct connections for the more populated sections of the service area. A regional transit transfer point with Hampton Roads Transit at the new Wal-Mart Distribution Center on U.S. Route 60 South is also planned.

Service to Jamestown and Yorktown is included in the plan, although it is not yet clear if this service will be operated as a part of the JCCT system or as part of an expanded Colonial Williamsburg (CW) system. In either case, it will be important that the Jamestown and Yorktown route(s) link to the major hotel corridors, either through a timed transfer at the CW Visitor Center and/or the city of Williamsburg transportation center, or through a direct route. Beginning in FY2002, JCCT will also be operating the College of William and Mary's Gold, Green, and Red routes. These routes connect the College's satellite areas to the main campus (the Dillard Complex, Ludwell Apartments, and the Law School).

**Figure 6.2 Recommendations, James City County
Long-Range Transit Plan**



Analysis for Jamestown 2007

As the “home team,” JCCT should certainly play an important role in the provision of added transit services for Jamestown 2007. The most logical role for the system is that of providing increased service on their regularly scheduled routes when the demand dictates. Another logical role is that of an advisor to the operators of other contracted peak demand transit services. The JCCT drivers and staff are likely to be knowledgeable concerning the peculiarities of the service area (i.e., particular turns that are difficult in a bus, intersections that may need signal timing adjustments in order to account for increased traffic, and base level traffic patterns). It is not likely that the expanded JCCT system will have the capacity to independently handle any major events (such as a 25,000-person event on Jamestown Island), but it could be one of several providers.

College of William and Mary

The College of William and Mary operates a bus service to transport students, faculty, and staff between the main campus area and three satellite areas, i.e., the Dillard Complex, the Ludwell Apartments, and the Law School. The College also provides special trips for campus groups when needed. The service is administered under the College’s Auxiliary Services Department. The College currently owns 10 vehicles that are dedicated for this

service, with three on the road at any one particular time. It is likely that the College will make the transition from being a provider of transit services to being a purchaser of transit services within the next few years. One of the recommendations of the Long-Range Public Transportation Plan for James City County is to have the College pay JCCT to operate the College routes. The current College drivers, as well as the College's transportation supervisor, will be hired by the county to operate the services.

Analysis for Jamestown 2007

The College of William and Mary is not likely to still own and operate vehicles in 2007.

Colonial Williamsburg Foundation

The Colonial Williamsburg (CW) Foundation operates buses in order to move visitors from the Colonial Williamsburg Visitor Center to the historic area, as well as to provide circulation around the historic area. The bus service is operated directly by the Foundation and is administered through the Office of Security. The Director of Security provides oversight of the bus service.

Operations

The vehicles are parked at the Foundation's facilities services building. There is a transportation office in the Visitor's Center where the dispatcher/supervisor is located. Drivers pick up the vehicles from the facilities services building and then report to the dispatcher/supervisor at the Visitor's Center.

Routes, Hours, and Days of Operation

There are two regular routes operated by the Foundation. A temporary park and ride bus service is currently in operation to handle the parking constraints associated with the ongoing Visitor Center renovation. The two regular routes are the Red Line and the Blue Line. The Red line provides service from 8:50 a.m. to 10:00 p.m. Between the hours of 8:50 a.m. and 5:00 p.m., the Red Line provides service between the Visitor's Center and the Palace on about six-minute headways. Between 5:00 p.m. and 10:00 p.m., the Red Line provides service from the Visitor's Center to the Magazine Bus Stop at S. England and Francis Streets.

The Blue Line provides a circuit around Colonial Williamsburg, stopping at designated stops (the Governor's Palace, the Capitol, the Taverns, the Magazine Stop, the Folk Art Center, the DeWitt Wallace Gallery, and Merchant's Square). This route operates on a 20-minute headway from 8:50 a.m. to 10:00 p.m. Both bus routes operate daily throughout the year.

There are variations to the schedules of the two routes to accommodate peak loads and special events. For example, there is typically a closing event at the Capitol or Market Square that can result in as many as 500 people needing a ride at the same time from the

event venue back to the Visitor Center. The CW system flexes its schedules in order to accommodate these types of peak loads.

There is also a route that runs to Carter's Grove Plantation. One round trip is made each day, leaving the CW Visitor Center at 1:00 p.m. and returning from Carter's Grove at 4:00 p.m.

Future routes may include links to Jamestown and Yorktown, perhaps as part of a combination admissions ticket to the facilities operated by the National Park Service or the Jamestown-Yorktown Foundation.

Staff

Oversight of the transportation staff is provided by the Director of Security. Day-to-day supervision is provided by a day-shift supervisor and an assistant as well as a night-shift supervisor and an assistant. The supervisors also act as the dispatchers, moving vehicles and drivers around as needed to help with peak-period loads and special events. There are 42 drivers in the pool of eligible drivers, with 19 of these drivers working full time. All staff are employees of the Colonial Williamsburg Foundation.

Vehicles and Maintenance

The Foundation owns 20 buses, 17 of which are large (40-foot) buses and three of which are small (30-foot) buses. The buses are maintained at CW's automotive shop, with a contractor providing the maintenance services. CW is making a transition to natural gas powered vehicles. CW is tentatively planning to expand its fleet, in part to provide service to Jamestown and Yorktown.

CW is planning to build a new maintenance facility on a site about 1.5 miles away from the existing automotive shop along U.S. Route 60. This facility would be operated by the contractor and would have bus storage for CW buses, up to five maintenance bays (depending upon partnership opportunities) as well as space to park tour buses. CW has indicated that there may be the potential for other parties (i.e., JCCT, HRT, and/or the College of William and Mary) to share this maintenance facility, thus maximizing its use as well as providing additional funding opportunities. When CW has come to an agreement with the contractor, CW will then contact the potential partners to see what arrangements might be feasible.

Analysis for 2007

It is likely that CW could play a role in the provision of transit services for the 2007 events, assuming it would not detract from its regular route services. As with JCCT, CW is the "home team," with the local knowledge and operating experience that may be helpful to implement the special event service that will be needed. CW is also experienced with moving large numbers of people at one time. In addition, it is likely that CW will already be providing regular route service to Jamestown and Yorktown.

Hampton Roads Transit

The Transportation District Commission of Hampton Roads (Hampton Roads Transit or HRT) was formed in 1999 through a merger of the Peninsula Transportation Authority (Pentran) serving the communities of Hampton and Newport News and the Tidewater Regional Transit Authority (serving the communities of Norfolk, Virginia Beach, Chesapeake, Suffolk, and Portsmouth). As the public transportation provider in the Hampton Roads urbanized area, HRT operates a large transit system over a geographically spread-out area. HRT is also the contractor for the *Relax and Ride* service. Hampton Roads Transit played a major role in providing park and ride transit services for the OpSail event that was held in the area in June 2000.

Routes and Services

While it is not necessary to articulate all of HRT's routes and services for this planning process, it should be noted that the Hampton/Newport News portion of the system is extensive and covers an area from Fort Eustis/Denbigh to Downtown Newport News and east through the city of Hampton to Langley Air Force Base and south to Buckroe Beach. There is also a route that connects the Hampton/Newport News area to the Southside portion of the service area (Norfolk, Virginia Beach, Chesapeake, Suffolk, and Portsmouth).

The closest routes to the James City County Transit service area are the Route 6/7 and the Route 11. The Route 6/7 uses Warwick Boulevard to connect downtown Newport News, Newport News Shipbuilding, Riverside Regional Medical Center, the Sherwood Shopping Center, and Fort Eustis. The Route 11 provides service to Thomas Nelson Community College, Oyster Point, Riverside Regional Medical Center, Patrick Henry Mall, the Newport News/Williamsburg Airport, Wal-Mart, and the Riverside Regional Convalescent Center. These routes terminate about eight miles south of the JCCT Grove route terminus. The James City County long-range public transportation plan calls for an extension of the JCCT routes to the Wal-Mart Distribution Center on U.S. Route 60 South as well as a northern extension of the HRT service to meet at this point.

Vehicles

There are 330 standard-sized buses in the Hampton Roads Transit Fleet. All are equipped with lifts or ramps for handicap accessibility. HRT also owns 20 trolley busses. By 2007, the agency anticipates acquiring a "moderate" number of additional transit buses, 15 small (20 to 25 seats) buses, and an unknown number of coach buses. HRT's peak demand extends from September through May, and is greatest on weekdays during that period. More buses should be available for leasing in the summer and on weekends.

Analysis for 2007

HRT has a large bus fleet and is likely to have a significant amount of spare capacity available on weekends throughout most of the year and in the summer months when local public schools are not in session. HRT has experience providing transportation services

for major events, one of the larger ones being the OpSail event that was held in June 2000. It is likely that HRT would be an important participant in the provision of transit services for 2007, both in terms of logistical expertise and vehicles.

Greater Richmond Transit Company

The Greater Richmond Transit Company (GRTC) provides public transit services in the Richmond area. GRTC currently has a fleet of 279 vehicles. This fleet is comprised of 179 transit buses, 75 small lift-equipped vans, 17 21-passenger vans, and eight rubber-tired trolleys. By 2007, there may be more fleet and route expansion, depending upon the level of federal, state, and local funding that is available. The 17 21-passenger vehicles are being used for a two-year suburban transit service demonstration project, which may or may not be continued past 2002. The trolleys are not likely to still be in operation by 2007.

GRTC staff indicated that they might be interested in participating in the 2007 event, but that it is too early to tell when they may have extra capacity that could be used for the event. The highest potential for assistance from GRTC would be for those events that take place on weekends. If GRTC does participate in the event, they could potentially provide vehicles and drivers as well as supervisory/dispatch help and vehicle maintenance support.

Analysis for 2007

While GRTC does not provide transit in the immediate service area, they do have a large fleet and they are located relatively close to the Historic Triangle area. It is recommended that the planning committee contact GRTC when there are more specifics concerning what day(s) services would be needed, as well as how many vehicles would be needed.

Public School Systems

Many special events, particularly those that are held in the summer and/or on weekends, use school buses to shuttle people from parking lots to the main event area. Several local area school systems were contacted to see if they might potentially be interested in providing service for the 2007 event, as well as to find out what level of resources might be available. The information gathered from the school bus systems is provided below.

Williamsburg/James City County

The Williamsburg/James City County school system has not yet responded to our request for information. From other data we know that they own and operate a fleet of 135 buses and their facility is located on Jolly Pond Way.

York County

The York County School Division Transportation Office owns a fleet of 124 buses. Of these, 117 are large school buses (seven of which are wheelchair accessible) and seven others are smaller, wheelchair accessible school buses. The Manager of Transportation Services indicated that they might be interested in helping with the 2007 event, potentially providing supervisory assistance, vehicles, drivers, back-up support, maintenance support, and transportation for persons with disabilities. He also indicated that they could only help during the summer months when school is not in session, but that their vehicles could be available on both weekends and weekdays. The fleet size and composition is not likely to change significantly between now and 2007.

Newport News Public Schools

The Newport News Public School System owns a fleet of 441 school buses, 35 of which are lift-equipped. The Transportation Coordinator indicated that any services that the system were to provide that were outside of its day-to-day school transportation mission would require approval from the school board, as well as full reimbursement for expenses. If the board approved the use of Newport News school buses for the Jamestown 2007 event, buses would be available only on weekends and evenings. The fleet size and composition is not likely to change significantly between now and 2007.

Gloucester County

Gloucester County Schools are not interested in participating in the Jamestown 2007 event as a transportation provider.

Analysis for 2007

School bus fleets may be appropriate for short-haul park and ride transit services. It is likely that the only time significant numbers of vehicles and drivers would be available would be during the summer months when school is not in session and/or on weekends during the remainder of the year. School systems that are interested in providing services for the event will also typically need to get approval from their respective boards and receive assurances that the provision of service for Jamestown 2007 will not interfere with their primary mission. It should also be noted that school buses are probably not the ideal vehicles for the event, both because of the child-sized seats and because of the single entry door (making unloading slower).

Military Resources

The Virginia Peninsula and adjacent areas of Hampton Roads are home to many large military facilities, including the Yorktown Naval Weapons Station, Langley Air Force Base, the Norfolk Naval Base, and Fort Eustis. Attempts were made to contact

representatives from these facilities to find out if they have vehicles that could be used for the Jamestown 2007 event and if they would be interested in participating as a transportation provider.

Fort Eustis (U.S. Army Transportation Center)

A representative from the public information office indicated that the Army has regulations that prohibit the use of its vehicles for non-military purposes.

Langley Air Force Base

A representative from Langley Air Force Base indicated that they might be interested in providing transportation support, but they have to ensure that any support they provide will not displace private transportation providers (much like the Federal Transit Administration's charter bus regulations).

Analysis for 2007

From preliminary discussions with military representatives in the area, it appears that the use of military vehicles would not be the most feasible option available. However, it may be possible to use some of the land on these facilities as temporary short-term parking areas during major events.

Private Transportation Providers

There are many private transportation providers in the Peninsula area, and each one who is listed in the phone book was called. The consultant team asked them a series of questions concerning their interest in providing services for the event, as well as questions pertaining to the size and composition of their vehicle fleets, their ability to provide support services, their pricing, and how their fleets may change between now and 2007. Information from 18 providers was collected.

The combined fleet of the 18 private providers includes 199 motor coaches, 19 small buses, nine vans, 10 "other" types of vehicles (primarily limousines), and two transit buses. Table 6.1 provides a list of the providers, indicating where they are located, whether or not they would be interested in providing support for 2007, what kind of support they would be able to provide, and what kind of vehicles they own. Table 6.2 presents the providers' information concerning how their fleets may change between now and 2007, how much advance notice is needed to schedule service, their current vehicle rental or lease rates, and any comments that they offered.

Table 6.1 Summary of Local Private Bus Operators

Company Name	City or Town	Potentially interested?	Company can provide:	Number and Type of Vehicles			
				Transit Buses	Motor Coaches	Small Buses (25 feet)	Vans
ACE Charter Service	Surry	Y	Veh, Dr, BU, VM		4		
Banks Charter Bus Line	Suffolk	Y	Veh, Dr		4		
Four City Tours	Hampton	Y	Veh, Dr, BU		4		
Gallop Bus Lines	Virginia Beach	Y	SD, Veh, Dr, BU, VM		19		
VIP & Celebrity Limousines	Williamsburg	Y	SD, Veh, Dr, BU, TD			1	Several, 5 to 14 pssgr.
Groome Transportation		Y	Veh, Dr, TD			12	5
Ground Transportation Specialists	Norfolk	Y	SD, Veh, Dr, BU, VM				2
Imperial Bus Service	Newport News	Y	SD, Veh, Dr, VM, TD		4	1	2
Jacobs Bus Co.		Y	Veh, Dr, BU		1		
James Bus Service	Newport News	Too soon to discuss it			6		
James River Bus Lines	Richmond	Y	SD, Veh, Dr, BU, VM, TD		45	3	
Newton Bus Service	Gloucester	Y	SD, Veh, Dr, BU, VM, probably TD		21		
Road Burners Tour Bus Service	Hampton	Y	SD, Veh, Dr, BU, TD		5		
Tidewater Touring		Y	SD, Veh, Dr, BU, VM, probably TD		6		
Tourtime America		Y	SD (have done this previously), Veh, Dr, BU, VM		29		
Venture Tours		Y	SD, Veh, Dr, BU, VM, TD		23		
Windancer Tour & Travel		Too soon to say					
Winn Transportation	Newport News	Y	SD, Veh, Dr, BU, TD		6		
TOTAL LOCAL PRIVATE FLEET				2	199	19	9

Note: 1) SD = Supervisory/Dispatch Help
 Veh = Vehicles
 Dr = Drivers
 BU = Back-up Support
 VM = Vehicle Maintenance
 TD = Transportation for people with disabilities

Table 6.2 Local Private Operator Characteristics

Company Name	Plans to change before 2007?	How far in advance are specifics needed?	Current rates	Comments
ACE Charter Service	Might buy one more bus of same size	At least three months		Busiest between March and October
Banks Charter Bus Line		Two weeks		
Four City Tours	If anything, larger buses, possibly with lift	Depends on bookings		Busiest March to December
Gallop Bus Lines	Expect to expand and renovate	Six months	\$50 to \$75/hour	Busiest in spring and fall, on weekends
VIP & Celebrity Limousines	If anything, will increase fleet	One day except for peak times		Vehicles no older than three years; insured up to \$1.5 million; April to June and September to October are peak times
Groome Transportation		Two to three weeks	Minibus \$45/hour; Trolley \$75/hour; Vans \$35/hour	Busy year-round; weekends are less busy
Ground Transportation Specialists	May expand	One week		Busiest May to June
Imperial Bus Service	Yes, more accessible vehicles	Three weeks	Flat rate: 10 hours \$300, on weekdays \$275	Busiest March to December
Jacobs Bus Co.	May expand	One month	\$2/mile, or by hour for local service	Busiest April to December, weekends
James Bus Service	Might expand	One to two months		
James River Bus Lines	Plan to buy two vehicles per year	Six months to one year	Time or mileage, whichever is greater; would offer a lower rate for a larger contract	Busiest in spring; Steven Story, President

Table 6.2 Local Private Operator Characteristics (continued)

Company Name	Plans to change before 2007?	How far in advance are specifics needed?	Current rates	Comments
Newton Bus Service	Plan to add at least one accessible vehicle	At peak times, a year in advance or ASAP	Hourly: \$47 for 46-pssgr. vehicle, \$54 for 55-pssgr. vehicle; local rates: \$2.35/mile for 46-pssgr. vehicle, \$2.70/mile for 55-pssgr. vehicle	Very busy in spring, and fall, becoming busier in summer Rates will be rising soon
Norfolk Motor Coach				
Road Burners Tour Bus Service		A couple of months	By the day	Busiest in summer
Tidewater Touring		A year ahead for peak times		Busiest in April to May, September to October
Tourtime America	No.	Depends on availability - six months to one year	Depends on availability - priced by greater of miles or hours	Busiest in March to May, September to October; becoming busier in early December; less busy on weekends
Venture Tours			By mile or day; eight-hour flat rate: \$320 for 43-pssgr. vehicle, \$430 for 64-pssgr. vehicle	May to June busier; yearly contract for D.C. tours
Virginia Overland				
Windancer Tour & Travel		Six months		
Winn Transportation	Might expand	ASAP - more notice needed for April, May	Hourly; six hour minimum: \$373 for 44-pssgr. vehicle, \$443 for 55-pssgr. vehicle, \$275 for minibus	Very busy in April or May; more info at: www.winbus.com

Analysis for 2007

Almost all of the private operators who were contacted expressed an interest in providing service for 2007. These operators are both predominantly local, and possess expertise in various special event transportation operations. As private operators, they are also likely to be fairly responsive, as they will not need to have approvals from any boards in order to provide the service.

Intercity Bus Services

Carolina Trailways and Greyhound Lines, Inc. provide intercity bus services along the Richmond to Norfolk corridor, with a stop in Williamsburg at the Williamsburg Transportation Center. Carolina Trailways is an affiliate of Greyhound. Currently, there are eight daily departures from Williamsburg to Norfolk and eight daily departures from Williamsburg to Richmond.

Analysis for 2007

Regularly scheduled intercity bus services are not likely to change dramatically between now and 2007, but Greyhound and its affiliates do have the ability to add capacity when needed to handle increased demand. This is often done in the summer months in certain high-demand corridors around the country. In addition, Greyhound and its affiliates commonly make their vehicles available for group charter operations in association with major regional and national events such as Jamestown 2007.

An effective shuttle bus system that will be able to provide connections from the Williamsburg Transportation Center to area hotels and attractions will be critical to the success of the intercity bus mode for visitors. The most effective shuttle service would be one that is scheduled to meet the buses as they arrive at the transportation center to provide a relatively seamless transfer.

Summary and Analysis of Transit Resources

There are currently more than 1,500 passenger transportation vehicles in service within a 50-mile radius, as well as intercity bus and rail services. It is likely that this number will increase by 2007, particularly among the local providers. Table 6.3 provides a summary of the major service providers, along with the fleet size and characteristics. If the major events are held on weekends and planned well in advance, this fleet would likely be able to handle the demand.

Table 6.3 Summary of Current Transit Resources

Agency/Group	Number of Current Vehicles
James City County Transit	11
Colonial Williamsburg	20
College of William and Mary	10
Private Transportation Providers	239
Williamsburg/James City County Schools	135
York County School System	124
Newport News School System	441
Hampton Roads Transit	300
Greater Richmond Transit Company	279
Total	1,559

The key services to be provided will be shuttles from satellite park-and-ride lots as well as shuttle connections for intercity bus and rail passengers. There may also be a need to increase the capacity on regular route services, depending upon the level of increased visitation.

For event planners the next step would be to decide upon a lead transportation person/agency/firm who would be responsible for contracting with the various transportation operators and providing organizational/planning/supervisory support. Until more specifics are known concerning event venues and estimates of expected visitation, it will be difficult to decide how many vehicles and how many satellite park-and-ride lots will be needed.

■ 6.3 Parking

A critical element in the success of any major public event such as the Jamestown 400th Anniversary Commemoration is the provision of an adequate parking supply to accommodate the needs of both local residents and visitors from other parts of the country. Because the Jamestown-Williamsburg-Yorktown region is already a major tourist destination, as well as being a growing urban area in its own right, there already exists a fairly large supply of public and private parking spaces. Rather than attempt to quantify the exact number of total parking spaces that are currently available in the area, this section will highlight the major parking facilities that can be expected to be available in 2006-2007.

The existing parking supply can be categorized into two general types:

- Destination/attraction parking facilities; and
- Regional park-and-ride/intercept parking facilities.

A brief discussion of each of these general categories is presented below.

Destination/Attraction Parking Facilities

Each of the major sites in the area that are likely to be event venues during the 400th Anniversary activities already have some amount of on-site parking. For example, the National Park Service Jamestown Island Visitor Center currently provides 215 automobile parking spaces and 25 spaces for buses or large recreational vehicles (RVs). The NPS parking area at Glasshouse Point has an additional 55 auto and six bus/RV spaces. Similarly, the NPS Yorktown Battlefield Visitor Center parking area currently provides space for 220 automobiles and eight buses/RVs. In conjunction with a study of the potential for providing an internal Park transportation system², parking occupancy studies were conducted at these locations in June 2000. The peak occupancies at these three NPS parking areas (i.e., spaces occupied compared to total available spaces) were determined to be as follows:

Jamestown Island Visitor Center	75.3 percent
Glasshouse Parking Area	83.6 percent
Yorktown Battlefield Visitor Center	27.3 percent

If it is assumed that a peak occupancy value of 90 to 95 percent represents the “functional capacity” of such visitor-oriented parking facilities, then it would appear that the existing NPS facilities are all operating under capacity. Based on anecdotal comments from NPS staff, the bus/RV parking area at the Glasshouse is routinely filled to capacity during the peak tour group visitation periods in the spring and fall months.

A detailed planning and environmental impact assessment process is presently underway to investigate potential improvements to the NPS visitor facilities on Jamestown Island.³ As part of this process, consideration is being given to the relocation of the existing Visitor Center to the area now occupied by visitor parking spaces. If this alternative is ultimately selected as the preferred development option for Jamestown Island, replacement visitor parking facilities will be needed. One alternative being investigated for this replacement

²Alternative Transportation System Feasibility Study for Colonial National Historical Park (Draft Final Report); Prepared for Colonial National Historical Park, National Park Service, U.S. Department of the Interior; Yorktown, Virginia; Prepared by BRW/URS, Denver, CO and Cambridge Systematics, Inc., Washington, D.C.; February 2001.

³Draft Master Plan for Jamestown; Association for the Preservation of Virginia Antiquities and the National Park Service; October 6, 1999.

visitor parking is the area known locally as “Neck of Land.” This area is located along the Colonial Parkway just east of Powhatan Creek. Preliminary studies have identified the potential to provide between 425 and 500 permanent paved auto parking spaces and between five and 20 bus spaces, and approximately 225 temporary overflow spaces on stabilized turf in this general area. A final decision on the ultimate redevelopment plan for Jamestown Island is expected by the end of 2001 or early in 2002, with the implementation of the recommended plan anticipated by 2005-2006.

The Jamestown Settlement presently has approximately 180 automobile parking spaces, with about 20 additional spaces provided for buses and large RVs. The Settlement is currently engaged in a master plan and facilities expansion process that envisions an increase in the on-site parking supply to a total of approximately 580 automobile spaces and 40 bus/large RV spaces.

The Yorktown Victory Center presently has approximately 140 automobile parking spaces and 28 spaces for buses and large RVs. There are no plans at the present time to expand the size of this parking area. A one-day parking occupancy study at this location was conducted on June 27, 2000 and determined that the peak occupancy of the Yorktown Victory Center parking area was approximately 25.0 percent.

Another major event venue during the 400th Anniversary is likely to be the area around Colonial Williamsburg. In anticipation of Jamestown 2007, the Colonial Williamsburg Foundation is currently engaged in a major reconstruction and expansion of its existing Visitor Center. When this work is completed in early 2001, the CW Visitor Center parking area will be able to accommodate approximately 2,000 automobiles. Another 40 to 50 short-term spaces for buses and large RVs will also be available. To accommodate peak parking demands, temporary overflow parking areas have been identified for approximately 1,000 additional autos.

A final likely major event venue is the campus of the College of William and Mary. In addition to the College’s existing surface parking lots, plans are underway to construct two new multilevel parking decks in the next three to five years. The total campus parking supply by 2007 is thus anticipated to be approximately as follows:

Faculty and staff parking areas	1,321 spaces
Student parking areas	1,296 spaces
Visitor/other general use parking areas	1,296 spaces
Additional spaces not yet assigned	500 spaces
Total	4,413 spaces

The city of Williamsburg also operates a number of public off-street parking facilities in addition to a large number of short-term, on-street curb parking spaces. The most significant of these off-street facilities include the following:

Municipal Building/Library	399 spaces
Retail Center/Merchants Square	296 spaces
Old Courthouse Parking Area	59 spaces
Total	754 spaces

Merchants Square is owned by the Colonial Williamsburg Foundation. The old courthouse site has been purchased by the Colonial Williamsburg Foundation, and the parking lot will be expanded to be used for both employee and visitor parking. In addition, the city of Williamsburg is preparing a design for a 350- to 450-space parking garage on the north side of Merchants Square, just north of Prince George Street. In total, these destination-/attraction-specific facilities represent a potential parking supply of approximately 10,000 automobile spaces.

Regional Park-and-Ride/Intercept Parking Facilities

In addition to the existing aforementioned destination-/attraction-specific parking facilities, there are a number of other public and quasi-public parking facilities in the region that may be available for use depending upon the day of the week and the time of year that a specific Jamestown 2007 event takes place. These include the following:

Virginia Department of Transportation	
Commuter Parking Lots	
Gloucester County	540 spaces
Isle of Wright County	50 spaces
James City County	75 spaces
York County	75 spaces
Surry County	70 spaces
City of Newport News	325 spaces
Subtotal	1,135 spaces
Local Public High Schools	
Williamsburg/James City County	792 spaces
York County	992 spaces
City of Newport News	2,085 spaces
City of Hampton	975 spaces
Subtotal	4,844 spaces
James City County Government	905 spaces
Christopher Newport University	3,119 spaces
Thomas Nelson Community College	2,100 spaces
Hampton Coliseum	3,200 spaces

In total, these additional public and quasi-public parking facilities represent approximately 15,300 auto parking spaces.

Moreover, dependent upon the time of year of the Jamestown 2007 events, the parking areas associated with other existing private recreational sites such as Busch Gardens and Water Country USA might also be available for use. As many as 10,000 additional automobile parking spaces might be available if these private facilities can be used.

Thus, with the exception of a limited number of major events with a duration of only one or two days, it would appear that the currently available parking supply in the Jamestown-Williamsburg-Yorktown area should be able to accommodate the increased parking demands associated with the Jamestown 2007 activities.

■ 6.4 Passenger Rail Services in the Historic Triangle Area

Passenger rail service is provided by Amtrak along the CSX corridor from Richmond to Newport News, with a stop in Williamsburg at the Williamsburg Transportation Center. There are two trains per day in each direction. The current service operates using five- to nine-car trains. Each car holds about 70 people, for a total train capacity of between 350 to 630 passengers per train. At four trains per day (two in each direction), Amtrak's regularly scheduled services can accommodate between 1,400 and 2,500 people per day on this corridor. If half of this capacity were to be made available for persons destined for Williamsburg, then between 700 and 1,250 people could use Amtrak to reach Williamsburg on a given day with the existing level of service.

In 1999, the I-64 Major Investment Study examined the potential for improved rail services along this corridor. This study, conducted by Parsons Brinckerhoff for VDOT, recommended substantial improvements to passenger rail services along the CSX line through Williamsburg. These improvements included double tracking the rail line, increasing train speeds to a maximum of 110 mph, adding station stops at Richmond International Airport, Providence Forge, and the Newport News/Williamsburg Airport, and operating eight round trips per day. These improvements would coincide with rail improvements planned for the Richmond to Washington, D.C., corridor. The total costs for the I-64 corridor rail improvements were estimated to be \$250 million. At this time there are no funds programmed for these improvements so it is doubtful that they would be in place prior to 2007.

Analysis for 2007

The intercity rail passenger mode has the potential to bring many visitors to the Williamsburg area, particularly if improvements are made to the rail infrastructure. Even without improvements, extra cars and/or trains could be added to meet the demands of a major event.

Amtrak staff indicated that cars could be added to accommodate increased demand, up to a train length of 15 to 18 cars, providing adequate advance notice is provided. If Amtrak were to run trains of this size for the event at the same frequency of service that exists today, they could transport between 3,000 and 4,000 passengers per day (again, assuming some of the capacity is not going to Williamsburg).

Amtrak also provides charter trains for special events, and the Jamestown 2007 event is likely to be one that could warrant special charter trains. It will be important to keep in touch with Amtrak staff during the planning process so that this mode can be used to its fullest capacity.

If the rail mode is used extensively, there will be a need for a high level of shuttle service to provide connections from the Williamsburg Transportation Center to area hotels and/or Jamestown Island. For example, if 1,000 people were to arrive via Amtrak at one time there would be a need for 22 or so buses to meet the train.

■ 6.5 Airport Facilities Assessment

Aviation facilities and services will play an important role in meeting the transportation needs for the events during the summer of 2007 commemorating the 400th anniversary of Jamestown.

An initial review of the airport facilities serving the area led to the identification of the nine airports with the greatest potential for serving the area during 2007. These airports were selected based on their proximity to Jamestown along with the size of the airport.

The following airports are included in the assessment:

Scheduled Passenger Service	No Scheduled Passenger Service
<ul style="list-style-type: none"> • Washington Dulles International (IAD) • Newport News-Williamsburg International (PHF) • Norfolk International (ORF) • Richmond International (RIC) • Ronald Reagan Washington National (DCA) 	<ul style="list-style-type: none"> • Hampton Roads (PVG) • Middle Peninsula Regional (W97) • Suffolk Municipal (SFQ) • Williamsburg-Jamestown (JGG)

For each of the airports, the following information is provided:

- Location and proximity of the airport to Williamsburg, Virginia, which includes mileage and estimated travel time by car;

- Operating characteristics, which includes the number of daily arrivals and departures, passenger trips in 1999, and the number of passenger trips during the peak month of travel;
- The number and list of all airports with direct nonstop service to the airport;
- List of airlines serving the airport;
- Ground transportation services available; and
- Major expansions or improvements scheduled for completion by 2007.

Newport News-Williamsburg International (PHF)⁴

Location and Overview

The Newport News-Williamsburg International Airport is located about halfway between Williamsburg and Newport News, Virginia, just off of Interstate 64. The 18 miles from the airport to Williamsburg is about a 20-minute drive. The airport offers a choice among three regional airlines with direct nonstop connections to four major metropolitan areas within the Mid-Atlantic Region. Newport News-Williamsburg International is the closest airport to Williamsburg with scheduled passenger service. However, current airline services have limited capacity.

Operating Characteristics

The Newport News-Williamsburg International Airport has approximately 50 daily arrival and departure flights. In 1999, the airport served a total of 436,249 passengers. Their peak passenger month in 1999 was June serving a total of 41,373 passengers arriving and departing through the airport. The cities served and charter companies operating at the airport are shown below.

Nonstop Direct Service	General Aviation and Charter Services
Atlanta	Rick Aviation, Inc.
Washington D.C.-Dulles	
Charlotte	
Philadelphia	

⁴Information is from the PHF web site and Lisa White, Marketing Manager, Newport News-Williamsburg International Airport, (757) 877-0221.

Taxi, Shuttle, and Limousine* Services

Destination	Taxi (per car)	Shuttle (per person)
Newport News	\$6 to 18	\$6 to 15
Williamsburg	\$17 to 34	\$15 to 25
Hampton	\$15 to 24	\$12 to 20
Norfolk	\$35 to 40	\$35

* Limousine prices vary.

Major Expansion Prior to 2007

Construction of additional parking facilities will be completed by the end of this year.

Norfolk International (ORF)⁵***Location and Overview***

Norfolk International Airport is located south of the James River on the northeast side of downtown Norfolk and is about 45 miles southeast of Williamsburg. The airport has convenient access to Interstate 64 and is about a one-hour drive to Williamsburg. The Norfolk International Airport currently has about 7,800 airline seats available daily. The airport has a 400,000-square foot passenger terminal that houses all airline ticket and baggage claim operations, rental car reservation counters, two airline concourses with 24 gates, and various retail and food concessions. Norfolk International is well served by both major national and regional airlines.

Norfolk International currently has 194 daily arriving and departing flights. In 1999, the airport served a total of 2,999,420 passengers. July had the highest monthly passengers for the year with 303,459 arriving or departing passengers.

⁵Information is from the ORF web site and Charles W. Braden, Director of Market Development, Norfolk International Airport, (757) 857-3351.

Operating Characteristics

Nonstop Direct Service		General Aviation and Charter Services
Atlanta	New York (JFK)	Piedmont Hawthorne Aviation
Baltimore	Newark	
Boston	Newport News	
Charlotte	Philadelphia	
Chicago	Pittsburgh	
Cincinnati	Raleigh	
Cleveland	Richmond	
Dallas	St. Louis	
Detroit	Washington (IAD)	
Houston	Washington (DCA)	
New York (LGA)		

Ground Transportation

Groome Transportation is the authorized shuttle service providing door-to-door service to the entire Hampton Roads area. Car, van, mini-bus, and motorcoach service operates between Norfolk International Airport and all Hampton Roads cities including Norfolk, Virginia Beach, Chesapeake, Portsmouth, and Suffolk on the south side of Hampton Roads; and the communities of Williamsburg, Hampton, Newport News, Jamestown, and Yorktown on the north side of Hampton Roads. Groome Transportation offers service from the airport to Williamsburg every 30 minutes on the half-hour and hour. Taxicab service is also available through seven different taxicab companies.

Major Expansion Prior to 2007

Phase I of the Norfolk International Airport Master Plan includes the construction of a new \$60 million, 230,000-square foot Arrivals Terminal that began in 1999, and a new state-of-the-art baggage retrieval system. Construction began in early 2000 on a new \$35 million, nine-level parking garage designed to hold approximately 2,450 vehicles. Runways, taxiways, and aprons are slated for rehabilitation and upgrade to accommodate an ever-increasing number of airline operations. Other future projects include the development of a parallel runway, construction of Concourse "C," and continued expansion of support facilities, all of which should be in place by 2007.

Richmond International (RIC)⁶

Location and Overview

The Richmond International Airport is located seven miles east of downtown Richmond and serves the air transportation needs of Central Virginia. Similar to Norfolk International Airport, Richmond International has easy access to Interstate 64 and is about 45 miles from Williamsburg, which is approximately a one-hour drive.

Operating Characteristics

The Richmond International Airport is well served by a large selection of major national and regional airlines with nonstop connections to 24 airports around the country. The airport has about 210 arriving and departing flights daily. In 1999, Richmond International served more than 2.6 million passengers. More than 243,000 of those trips occurred during the month of July, the airports peak travel month in 1999.

Nonstop Direct Service

Atlanta	Newark
Baltimore	Norfolk
Boston	Orlando
Charlotte	Philadelphia
Chicago (ORD)	Pittsburgh
Cincinnati	Raleigh/Durham
Cleveland	St. Louis
Dallas	Tampa
Detroit	Washington (IAD)
Houston	Washington (DCA)
New York (LGA)	Freeport, Bahamas
New York (JFK)	Toronto, Canada

Ground Transportation

Groome Transportation sedans are available curbside at the airport's baggage claim area. Executive sedan/limousine service and taxi service is available curbside from first flight departure to last flight arrival. The Greater Richmond Transit Company offers public buses to the Richmond terminal and to the city, as well as other Greater Richmond locations.

⁶Information is from the RIC web site and Edward Hechler, Richmond International Airport, (804) 236-2106.

Major Expansion Prior to 2007

Richmond International has several airport improvements scheduled to be completed by 2003-2004 including the creation of 10 additional gates. The design of a new terminal building will accommodate departures on the upper level and arrivals on the lower level. This project includes renovation and redevelopment of the existing terminal to accommodate expanded baggage handling and baggage claim areas, modified building systems, and improved passenger circulation from curbside to the concourses.

The improvements will expand existing Concourse “C” and add seven additional aircraft boarding bridges and approximately 53,000 square feet of terminal space. This additional space will allow for current airlines to expand their service and for new airlines to begin service. The airport is anticipating a 20 to 30 percent increase in scheduled flights by 2007.

The terminal expansion also involves the design of a new bi-level terminal access roadway system as well as an elevated platform structure for the future development of a second level terminal building expansion. This project includes modifications to the surface parking areas, access to those parking areas, and development of a new parking facilities administration building. This project will enhance capacity and reduce ingress/egress delays experienced by the traveling public. Furthermore, a new public parking garage will be constructed on the site of the existing surface parking lot. A new rental car parking deck will accommodate 600 parking spaces.

Washington Dulles International (IAD)⁷

Location and Overview

Washington Dulles International Airport is located about 25 miles west of downtown Washington, D.C. The airport is 166 miles north of Williamsburg, which is approximately a three-hour drive.

Operating Characteristics

Washington Dulles International has more than 1,100 passenger flights leaving and arriving daily. These flights serve nearly 60,000 passengers per day. Dulles Airport was the fastest growing major airport in the world in 1999 with a 26 percent increase in the number of passengers served compared to the level of activity observed in 1998. More than 20 million passengers were recorded in 1999, with more than 1.9 million trips during their peak month of July. The airport provides nonstop service to 74 U.S. airports daily with direct service to 32 foreign cities. The airport is currently working to complete \$3.4 billion worth of airport improvements.

⁷Information is from the IAD web site and Susan H. Abeles, Metropolitan Washington Airports Authority, (703) 417-8759.

Nonstop Direct Service		General Aviation and Charter Services
Albany	Miami	Signature Flight Support
Allentown*	Milwaukee	
Atlanta	Minneapolis	
Baltimore*	Nashville	
Beckley*	New Orleans	
Boston	Newport News*	
Bluefield*	New York (JFK)	
Buffalo*	New York (LGA)	
Burlington	Newark	
Charleston (SC)	Norfolk*	
Charleston (WV)	Oklahoma City	
Charlotte	Omaha	
Charlottesville*	Orlando	
Chicago-Midway (MDW)	Philadelphia	
Chicago-O'Hare (ORD)	Phoenix	
Cincinnati	Portland (ME)*	
Cleveland*	Portland (OR)	
Columbia	Pittsburgh	
Columbus	Providence	
Dallas-Love (DAL)	Raleigh/Durham	
Dallas-Ft. Worth (DFW)	Richmond*	
Dayton*	Roanoke*	
Denver	Rochester (MN)	
Detroit	Rochester (NY)	
Fort Lauderdale	Sacramento	
Greensboro*	St. Louis	
Greenville/Spartanburg	Salt Lake City	
Harrisburg*	San Diego	
Hartford	San Francisco	
Houston	San Jose	
Indianapolis	San Juan	
Ithaca*	Savannah	
Jacksonville	Seattle	
Kansas City	Spokane	
Knoxville*	State College, PA*	
Las Vegas	Staunton, VA*	
Los Angeles	Syracuse*	
Louisville	Tampa	
Lynchburg*	Tucson	
Memphis	Wilmington, NC	

* These locations served only by regional carrier.

Ground Transportation

The Washington Flyer Express Bus provides hourly, inter-airport service between Washington Dulles and Ronald Reagan National Airports and between Dulles Airport and the West Falls Church Station of the Washington Metropolitan Area Transportation Authority's (WMATA) regional Metrorail system. Ground transportation service is also provided by the Washington Flyer Express Bus to the Downtown Airports Terminal, with courtesy shuttle service provided to the city's most popular hotels and to Union Station, the region's primary intercity rail passenger station.

SuperShuttle van operations provide shared-ride, door-to-door service from Dulles Airport to anywhere within the Washington metropolitan area. This service operates from 5:30 a.m. to 12:30 a.m. daily, with one-way fares to downtown Washington, D.C., costing in the range of \$20 to \$24. Washington Flyer taxicabs serve Dulles International Airport exclusively with 24-hour service to and from the airport from any location in the region. Wheelchair-accessible minibuses that accommodate nine to 12 passengers are also available for use to and from Washington-Dulles International Airport with advance reservations. One-way fares from the airport to locations in Washington, D.C., on the Washington Flyer taxicabs range from \$35 to \$47.

From designated stops in the nearby city of Fairfax and the town of Leesburg, Greyhound Bus Lines connects the airport to multiple locations in Virginia (Warrenton, Culpepper, Charlottesville, Lynchburg, Roanoke, Winchester, and Harrisonburg) with connecting service to Richmond, Harrisburg, Baltimore, Philadelphia, and New York City.

Major Expansion Prior to 2007

Dulles International's Major Capital Development Program calls for building a number of new facilities at the airport, including an underground rail passenger distribution system, additional public parking, a new concourse, and a new runway. The \$3.4 billion Capital Construction Program will enable Washington-Dulles International Airport to meet the growing air travel needs of the region. Specific major projects are highlighted below:

- A new permanent concourse to replace the current temporary Concourse "C/D." The concourse will provide additional aircraft gates.
- A new runway to accommodate the growth in aircraft operations and ease aircraft congestion.
- Roadway improvements through the expansion and widening of existing roads to allow for greater efficiency of vehicle traffic movement on the airport.
- Passenger walkways, equipped with moving sidewalks, will connect the concourses and the terminal and allow greater ease of movement for passengers and an alternative to use of the Mobile Lounges.
- An underground airport rail system connecting the terminal with each concourse to provide rapid, efficient delivery of passengers to their airline gates as an alternative to the pedestrian walkways.

- A separate underground rail system to transport international passengers from the midfield concourses to the International Arrivals Building.
- Expansion of Concourse “B,” adding new aircraft gates to bring the total to 44 gates.
- Improved flight information and baggage information systems to better address the needs of passengers for clear, easy to understand displays.
- Renovation of the original 1962 Eero Saarinen designed terminal, including improved ticketing counters and new baggage claim devices. The temporary airline gates will be rehabilitated.
- Two multilevel parking garages to be constructed near the main terminal will provide nearly 8,700 close-in parking spaces.

Ronald Reagan Washington National Airport (DCA)⁸

Location and Overview

Ronald Reagan Washington National Airport (DCA) serves as a predominantly “short-haul” airport, offering nonstop service to destinations generally no further than 1,250 miles from Washington, D.C. The airport is located on the west shore of the Potomac River approximately five miles south of the White House. The airport has convenient access to Interstate Routes 395 and 95 to Richmond en route to Williamsburg, which is about 150 miles to the south. The drive from Reagan National to Williamsburg is approximately three hours.

Operating Characteristics

Ronald Reagan Washington National Airport accommodates about 760 arriving and departing flights each day. In 1999, more than 15 million passengers used the airport. Approximately 42,000 passengers per day fly on the airport’s commercial, general aviation and commuter flights. The airport served almost 1.5 million passengers during the 1999 peak month of May.

⁸Information is from the DCA web site and telephone interview with Susan H. Abeles, Metropolitan Washington Airports Authority, (703) 417-8759.

Nonstop Direct Service		General Aviation and Charter Services
Albany	Manchester	Signature Flight Support
Allentown*	Martha's Vineyard*	
Atlanta	Memphis	
Baltimore*	Miami	
Boston	Milwaukee	
Buffalo	Minneapolis	
Burlington*	Morgantown*	
Charleston	Nantucket*	
Charlotte	Nashville	
Chicago-Midway (MDW)	New Haven*	
Chicago-O'Hare (ORD)	New Orleans	
Cincinnati	New York (JFK)	
Cleveland	New York (LGA)	
Columbia*	Newark	
Columbus	Norfolk*	
Dallas (DFW)	Omaha	
Dayton	Orlando	
Detroit	Philadelphia	
Fort Lauderdale	Portland (ME)*	
Grand Rapids	Pittsburgh	
Greensboro	Providence	
Greenville/Spartanburg	Raleigh/Durham	
Hartford	Richmond*	
Houston	Roanoke*	
Huntsville	Rochester	
Indianapolis	St. Louis	
Jacksonville	Salisbury*	
Kansas City	Syracuse	
Knoxville	Tampa	
Lewisburg*	Westchester County*	
Louisville	West Palm Beach	

* These locations served only by regional carrier.

Ground Transportation

The Washington Flyer Express Bus offers frequent service between Ronald Reagan Washington National and Washington Dulles International Airports. SuperShuttle provides door-to-door shared-ride service anywhere within the Washington Metropolitan Area. Metrorail, the region's rapid transit system stops adjacent to Terminals "B" and "C."

Public bus service is available to areas not served by Metrorail. Washington, D.C., Virginia, and Maryland taxicabs are also available at the exits of each terminal.

Locations outside the Metropolitan Washington Area are not accessible by Metrorail, SuperShuttle, Washington Flyer Express Bus, or taxi. However, there are other options including Amtrak access at Union Station in downtown Washington, D.C., or in Alexandria, Virginia. Currently there are two to three daily trips between Washington, D.C., and Williamsburg, Virginia, which take about 3.5 hours at a cost of about \$36. Greyhound service is also available from Downtown Washington, D.C., and currently has one direct three-hour trip to Williamsburg at a cost of \$32.

Major Expansion Prior to 2007

A new terminal project is the centerpiece of the Metropolitan Washington Airports Authority's nearly \$1 billion Capital Development Program to improve service and customer convenience at Ronald Reagan Washington National Airport. New terminals "B" and "C" are located north of "old" Terminal "A." The facility is comprised of three levels: Upper (Ticketing), Middle (Concourse), and Lower (Baggage Claim).

Williamsburg-Jamestown (JGG)⁹

Location and Overview

The Williamsburg-Jamestown Airport is located three miles from downtown Williamsburg, which is about a five-minute drive. The airport has no scheduled passenger services.

Operating Characteristics

The airport has several airport services including charter service. The airport's asphalt runway dimensions are 3,200 feet by 60 feet. For comparison purposes, the Newport News-Williamsburg International Airport runways are 8,000 feet by 150 feet and 6,500 feet by 150 feet, and Ronald Reagan Washington National Airport's runways are between 4,505 and 6,800 feet by 150 feet.

General Aviation and Charter Services

Williamsburg Air Charter
Jamestown Flight Center

⁹Information is from Jean Waltrip, Williamsburg-Jamestown Airport, the *2000-2001 Virginia Airport Directory*, Virginia Department of Aviation, and Airnav web site (www.airnav.com).

Ground Transportation

Thrifty Car rentals on field. Taxi ride to town should be less than \$10 one way.

Major Expansion Prior to 2007

The Williamsburg-Jamestown Airport has plans to expand their runway by 900 feet, to a total of 4,100 feet, by 2007. The airport will also be increasing the amount of paved parking area for aircraft and constructing more hanger space. Furthermore, a new road to the airport is scheduled for construction.

Suffolk Municipal (SFQ)¹⁰

Location and Overview

The Suffolk Municipal Airport is located a few miles south of Suffolk, Virginia, which is about 20 miles southwest of Norfolk. The airport is about 65 miles south of Williamsburg, which is a one-hour and 25-minute drive.

Operating Characteristics

The Suffolk Municipal Airport has some airport services and two asphalt runways measuring 5,000 feet by 100 feet and 4,700 feet by 100 feet.

Ground Transportation

Rental cars are available from several car rental agencies. Call ahead and staff will assist in contacting a rental car agency so that a rental car can be ready and waiting at the airport.

Major Expansion Prior to 2007

None.

¹⁰Information is from the 2000-2001 *Virginia Airport Directory*, Virginia Department of Aviation, Suffolk Municipal Airport web site, and Airnav web site (www.airnav.com).

Middle Peninsula Regional (W97) a.k.a. West Point Municipal¹¹

Location and Overview

Middle Peninsula Regional Airport is located two miles southeast of West Point, Virginia. The airport is 30 miles north of Williamsburg, which is about a 50-minute drive.

Operating Characteristics

Middle Peninsula Regional Airport has very few airport amenities. The asphalt runway dimensions are 3,700 feet by 75 feet, which is slightly larger than the Williamsburg-Jamestown airport. West Point Aviation serves as the Fixed Base Operator.

Major Expansion Prior to 2007

None.

Hampton Roads (PVG)¹²

Location and Overview

Hampton Roads Airport is a small, privately owned, general aviation airport located about seven miles southwest of Portsmouth, Virginia. Williamsburg is 55 miles northeast of the airport, which is approximately a one-hour drive.

Operating Characteristics

The airport has no passenger airline service although two companies, Mercury Flight Center and Eads Flight School, offer charter services with four aircraft that seat fewer than six to eight people. The airport's asphalt surface dimensions are 4,000 feet by 70 feet.

Major Expansion Prior to 2007

None.

¹¹Information is from the 2000-2001 *Virginia Airport Directory*, Virginia Department of Aviation, and Airnav web site (www.airnav.com).

¹²Information is from the 2000-2001 *Virginia Airport Directory*, Virginia Department of Aviation, and Airnav web site (www.airnav.com).

■ 6.6 Jamestown 2007 Bikeways

Bicycles and Tourism

Many resort communities throughout the United States have created user-friendly networks of bicycle trails to enhance recreational opportunities and overall livability. For example, the Rocky Mountain Resorts of Sun Valley, Idaho, and Park City, Utah, have developed extensive networks of shoulder bike lanes and multi-use paths for the enjoyment of residents and visitors. Resort communities – like the greater Williamsburg area – have unique natural and historical settings that make them ideal locations for bicycling.

The Williamsburg area in particular has riding appeal because of its natural and historical setting. A verdant tree canopy, attractive landscaping, and lush wetland areas along the tidewater rivers characterize the area's natural setting. Visitors come to Williamsburg to enjoy the rich history and architecture of the American Colonial period. With enhanced bicycle facilities, two-wheeled transportation can become an important recreational activity in a vacation to the Williamsburg area. If the Williamsburg area can develop a bike-way system similar to those existing in other top vacation destinations, bicycling alone has the potential to be a major generator of visitors.

Creating a Bicycle-Friendly Place

Williamsburg can become a destination recognized for bicycle mobility through careful design and integration of key historic sites and tourist facilities. Colonial Williamsburg, Jamestown and the College of William and Mary campus, for example, could be linked to hotel clusters where visitors can ride from their accommodations to the various attractions. Through increased and improved bicycle facilities, the region's visitors, permanent residents, and students will benefit from increased mobility and recreation opportunities.

To become a destination associated with bicycle mobility, the region should focus on several key characteristics of bicycle-friendly communities. The U.S. DOT's Pedestrian and Bicycle Information Center lists several key design elements that make a community more bicycle friendly. These include: 1) on-street facilities that are delineated with separate markings and are sufficiently wide (four feet or more); 2) Shared use paths (trails) adjacent to existing roads or with regular connections to the street network; 3) Signs and markings that enhance safety and give clear directions; 4) Traffic calming measures to slow automobile traffic; 5) Secure bicycle parking to discourage theft; and 6) Intersections with markings and lanes permitting bicycle turning movements.

Existing Facilities

Many bikeways already exist throughout the region. These bikeways, consisting primarily of shoulder lanes along primary and secondary highways, will become part of a comprehensive network as area jurisdictions and the Virginia Department of Transportation

provide additional route segments. Some important existing bikeways include (as shown in Table 6.4 below):

Table 6.4 Existing Bicycle Facilities in Historic Triangle Area*

Existing Facilities	Type of Facility
York County	
Old York-Hampton Highway	Shoulder Lanes
Route 132	Shoulder Lanes
Rochambeau Drive	Shoulder Lanes
Bypass Road	Multi-Use Path
Kiln Creek Parkway	Multi-Use Path
Owen Davis Boulevard	Shoulder/Multi-Use
Coventry Boulevard	Shoulder/Multi-Use
Running Man Trail	Shoulder Lanes
Colonial Parkway (National Park Service)	Shoulder Lanes
City of Williamsburg	
South Henry Street	Shoulder Lanes
John Tyler Lanes (Jamestown Road to city limit)	Shoulder Lanes
Monticello Road	Shoulder Lanes
Route 143	Shoulder Lanes
National Park Service	
Colonial Parkway	Shared-Use Roadway/Shoulder Lanes
James City County	
Centerville Road	Shoulder Lanes
Monticello Avenue	Shoulder Lanes
Mill Pond Run (south side)	Multi-Use Path
Fieldstone Parkway (west side)	Multi-Use Path
Stonehouse Parkway (east side)	Multi-Use Path
Longhill Connector Road (east side)	Multi-Use Path
Longhill Road (west side)	Multi-Use Path
Centerville Road	Shoulder Lanes
Longhill Road	Shoulder Lanes
News Road	Shoulder Lanes
Forge Road	Shared-Use Roadway/Shoulder Lanes
Richmond Road	Shared-Use Roadway/Shoulder Lanes
Route 199 (sections)	Shared-Use Roadway/Shoulder Lanes
Jamestown Road	Shared-Use Roadway/Shoulder Lanes
Greensprings Plantation Drive	Shared-Use Roadway/Shoulder Lanes

* This is a partial list and may not include all bikeways or recently completed bikeways.

Facility Types

The following is a description of the types of facilities described in the preceding tables:

Multi-Use Paths are constructed physically separate from the roadway in either a path within the road right-of-way or in a separate right-of-way, apart from roads and streets. The primary characteristic of the multi-use path is its separation and protection from motor vehicle traffic. These facilities are usually eight- to 12-feet wide and designed to accommodate two-way bicycle traffic.

Shoulder Bike Lanes are constructed adjacent to traffic lanes and are generally delineated by pavement markings. These bike lanes are typically three- to six-feet wide paved shoulders. Shoulder bike lanes can also be separate lanes between the travel lanes and on-street parking areas in urban areas. To accommodate two-way traffic, these lanes should be constructed on both sides of the road.

Future Planning

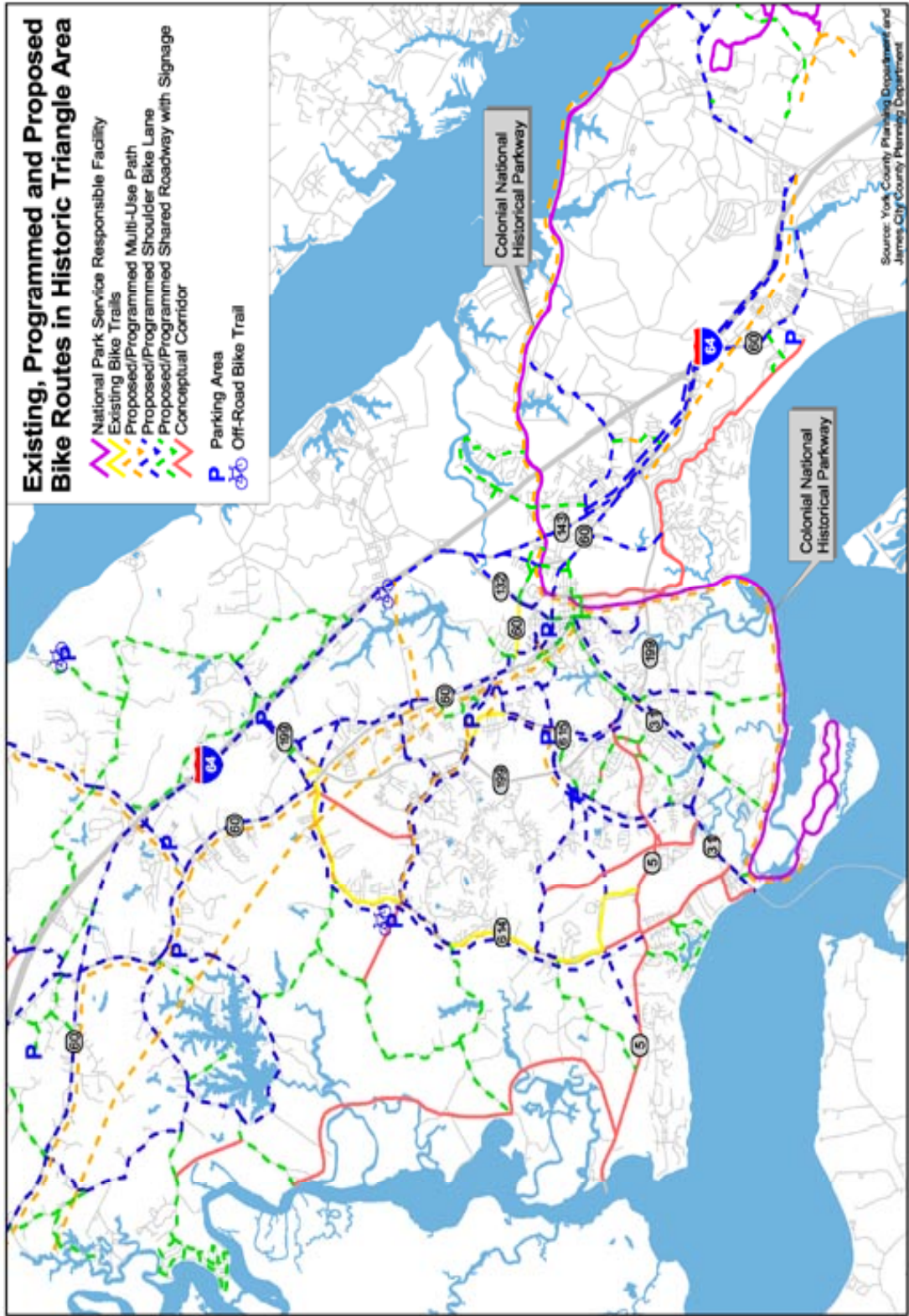
In many ways, the region is becoming a bicycle-friendly community. The most important initiative towards this end is the *Regional Bicycle Facilities Plan*¹³ developed jointly by James City County, York County, and the city of Williamsburg. Originally drafted in 1993 and updated in 1998, the Plan builds upon the individual efforts of the participating jurisdictions by providing a comprehensive and long-range bicycle plan for the region. The plan defines future bicycle facilities and argues for their completion to enhance livability and tourism in the region. Existing and future routes are depicted in Figure 6.3.

Specifically, the Plan identifies issues associated with the implementation and funding of bikeways throughout the region, including interagency coordination, funding strategies, and physical design of bike routes and trails.

The *Regional Bicycle Facilities Plan* proposes 391.5 miles of new multi-use paths, shoulder bike lanes, shared roadway lanes, conceptual planning corridors, and other preliminary bicycle facilities. Of the many important potential bikeways in the three local jurisdictions, those with the highest probability of completion are those projects that have received at least partial funding.

¹³Information for this section is derived from York County, Virginia, Geographic Information Systems; James City County GIS, Mapping Department; city of Williamsburg. "Regional Bikeway Map: James City County, Williamsburg, York County" [map]. [Yorktown, Virginia] York County, Virginia Geographic Information Systems, March 9, 2001. The planning divisions of the respective agencies contributed as well.

Figure 6.3 Existing, Programmed and Proposed Bike Routes in Historic Triangle Area



The *Regional Bicycle Facilities Plan* indicates the primary funding source is Federal ISTEA (and TEA-21) funding matched by funds from the State Primary Road System Program, the counties' Secondary Road System Program, and the city's Urban Road System Program. To date, many of the bikeways with primary funding have been constructed. In the following paragraphs, future bikeways for York County, Williamsburg, and James City County are described.

York County

York County has three planned and programmed bikeway projects to be completed before 2007. Those projects are listed below with their funding sources:

Planned and Programmed Bikeway Projects	Funding Sources
Goodwin Neck Road	CMAQ
Waller Mill rail trail	CMAQ and Secondary Road funds
Cook Road	CMAW and Secondary Road funds

City of Williamsburg

The city of Williamsburg has only one planned and programmed bikeway project to be completed before 2007. That project is the creation of a shoulder bike lane on Jamestown Road from John Tyler Road to Campus Drive completed with city funding. Other projects that affect Williamsburg are the Strawberry Plains Road improvements (listed below under VDOT) and the Ironbound Road improvements by James City County (also listed below under James City County).

James City County

James City County has planned and programmed seven bikeway projects with a high probability of completion before 2007. Funding has traditionally come from CMAQ. Those projects are listed below:

- Monticello Avenue/Alternate Route 5;
- Strawberry Plains Road (VDOT);
- Ironbound Road;
- Centerville Road;
- Longhill Road;
- James City County Portion of Capitol to Capitol Bikeway; and
- Colonial Parkway Connections.

In addition to the three area jurisdictions involved in bikeways planning, two other entities, the National Park Service (Colonial National Historical Park) and the Virginia Department of Transportation, have been active in planning, constructing, and maintaining trails. The following paragraphs outline their future planning efforts.

Colonial National Historical Park

An important component of the National Park Service's initiative to enhance alternative transportation options at the park is to establish a multi-use trail adjacent to the Colonial Parkway. The Park already maintains an unmarked, shared-use travel lane/shoulder lane trail on the Colonial Parkway. A new, separated multi-use trail would permit bicycle and pedestrian travel along the length of the Parkway connecting Colonial Williamsburg Jamestown and Yorktown. The main advantage of such a route is to provide a separate, non-motorized transportation facility linking the area's two premier historic sites. The trail would also provide enhanced safety for individuals and families visiting the area and using bicycles to travel between venues.

Virginia Department of Transportation

VDOT is currently planning a bicycle route along State Route 5 from Richmond to Williamsburg. Called the "Capitol to Capitol Trail," this new facility will link the Colonial historic sites of Williamsburg to the population base and attractions of Virginia's capital city, including Civil War and Antebellum history.

Another VDOT project is the planned construction of a bikeway on Strawberry Plains Road (on the Williamsburg municipal line) from John Tyler Road to Ironbound Road.

■ 6.7 Bus Operations Planning

Introduction

This document provides a framework for planning the bus transportation operations associated with Jamestown 2007. While this document provides the concepts and basic approaches needed to serve the commemoration, there will soon be a need for more detailed proposals and plans. Planning for the transportation needs of this event will be challenging; particularly at sites that are not designed for accommodating large numbers of people. Ensuring that getting to and from the event is as convenient, pleasant, and safe as possible is the goal of transportation planning for this event. Viewing transportation from the visitor's perspective will aid in creating a plan that will accomplish this goal. Some of this work described here has begun in this phase of work. This work should continue, in more detail and specificity, in the next phase.

Develop Transportation Planning Organization

The size and complexity of the events will determine how structured the decision-making process should be. The first step is to determine who will be in charge of transportation planning. The “transportation coordinator” will be responsible for all transportation planning decisions. The complexity of tasks will determine the time required of the transportation coordinator. A paid staff member could serve in this position. The transportation coordinator would work closely with the Logistics Transportation Working Group.

Committee Composition

It will be useful to establish a transportation operations committee. The benefit of the committee is that many perspectives can provide input into the decision-making process. These perspectives should include representatives from agencies and organizations that will provide transportation services for the commemorative events. The committee should consist of event organizers, transportation officials, and jurisdictional representatives. Committee members should include representatives from:

- Law Enforcement;
- Emergency Response;
- State Departments of Transportation;
- Local Traffic/Roads Departments;
- Transit Providers; and
- Passenger Air and Rail Providers.

The Committee should be inclusive enough to cover potentially affected interests but small enough to be an effective working group. A committee of 12 people or less is preferable. The Transportation Coordinator would be responsible for setting up the committee, determining the role of the committee and facilitating meetings.

Committee Function

The Transportation coordinator will determine the role of the committee either serving in an advisory role or in a decision-making role.

Coordinate Decisions

The transportation coordinator or an appointed committee member should maintain communication with the Logistics Transportation Working Group and other event committees and decision-makers. Changes to events, either in scope, time, or location, need to be communicated as soon as possible. Likewise, transportation constraints and issues will need to be communicated and considered with respect to other event decisions.

Prepare Event Summary

The Transportation Plan should include an event summary describing the event, locations, dates, times, peak times, and estimated number of participants and staff. The event summary should provide enough information for understanding the general transportation needs.

Map

A detailed regional area map should be created that illustrates all major highways and main routes to the events. The map should identify the following items:

- Event Parking Areas and number of spaces;
- Potential Park and Ride Lots and number of spaces;
- Airports;
- Rail Stations;
- Transit Routes and Transfer Areas;
- Transit Bus Storage Areas;
- Intercity Bus Stations;
- Related Tourism Destinations;
- Campgrounds;
- Hotel Areas;
- Anticipated Visitor Routes; and
- Pedestrian/Bike Facilities.

Develop Detailed Transportation Plan

The Transportation Plan will require additional data for the following transportation topics.

Transit

Local Transit Service: Transit routes and schedules should be reviewed to determine to what degree, if any, existing transit services can be utilized.

Other Transit Service: Review and determine if regional transit operators provide transit services between communities that can be utilized. Public transit from nearby communities, private coach services, and other transit providers (i.e., school bus contractors) should be identified as potential sources of equipment and labor.

- **Bus Storage/Maintenance:** Identify locations of bus storage and maintenance facilities.

Fleet Size: List fleet size of local and area transit providers. Identify the number of buses required for regular transit services by time of day and day of week. Bus fleet information should include number of buses by size, type (e.g., low floor, etc.), and compliance with the Americans with Disabilities Act (ADA). The type and ease of use of accessibility equipment (e.g., lifts or ramps) should be listed. The type of bus is particularly important if a significant number of visitors are seniors, children, or have mobility limitations.

Bus Staging Areas: Identify existing and potential bus staging areas by location and size. Pick-up and drop-off locations should be identified and evaluated for adequate turning radii, bus storage area, and waiting areas.

Contracting Entity: The entity responsible for developing and implementing the contract for transit services should be determined.

Passenger Waiting Areas: Determine demand and space required at waiting areas (e.g., number of visitors and average wait times). Assess and evaluate transit passenger needs at waiting areas. These may include sitting areas, cover from sun or rain, restrooms, drinking water, trash receptacles.

Motor Pool

Depending on the type and scope of the event, there may be a need for creating a motor pool for transporting VIP's, event officials, and/or operations staff. If it is determined that a motor pool is not necessary, provisions for transporting event staff should be arranged.

Rental Car Fleet: If establishing a motor pool proves necessary or desirable, vehicles will need to be obtained either through volunteers or through rental car agencies. There may be insurance liability issues related to drivers and vehicles. The motor pool will need to be organized and a communications system in place to ensure that vehicles are being used efficiently and appropriately.

Sponsorship Opportunities: There may be an opportunity to get vehicles donated for the motor pool by a sponsor such as a rental car company or auto dealership.

Parking

Detailed estimates for the amount of parking need to be generated. This can be accomplished once plans for parking facilities at the Jamestown Island and Jamestown Settlement are finalized. If on-site parking is more limited than anticipated, additional strategies for encouraging the use of less convenient parking and park and ride lots will be necessary. It will be necessary to restrict on-site parking for handicap parking, bus staging areas, motor pool uses, or staff parking, which may also prevent bottlenecks from occurring at limited space parking areas, for some mid-sized and most major events, depending on the timing and nature of these events.

Locations and Capacity: Parking lot locations and parking capacity will need to be finalized. Parking lots and sizes should be mapped and prioritized as most to least desirable based on the distance/time from the event, the number of vehicles that can be

accommodated, and the location and convenience to major corridors. Contacts should be initiated between transportation agencies and landowners, in situations where leasing opportunities exist.

Access: Parking lots should be as close to the event as reasonably possible and/or easily accessible from major highways.

Lighting: Parking lot lighting may be necessary depending on event times. If parking lots do not have existing or adequate lighting, installing temporary lighting may be necessary. Parking areas should be well lit if events end after dusk. Temporary parking lots may create special lighting issues and concerns.

Safety: Protection of property and personal security may be a significant concern, particularly where parking locations are isolated from public activity. Security measures will need to be considered at park and ride lots and isolated parking lots.

Staffing: Parking facilities may require personnel to direct traffic, collect fees, or provide security. If parking lots do not have designated spaces staff will be needed to direct drivers where to park. For temporary lots, maximized parking configurations need to be identified and a plan of directing drivers to spaces in an organized manner developed.

Visitor Information/Signage

Providing appropriate and understandable visitor information will be a critical component regardless of the transportation complexities. However, the more complex the system is, the more information visitors will need. Event visitors will need directions to event locations and information on what to expect once they arrive (for example, parking price, transfers to bus, shuttle run times, etc.). Directional and informational signs should be carefully planned to make the trip as simple and pleasant as possible. It is particularly important that the visitor leaving their personal vehicle have confidence in how to use the shuttle system.

Directional: The first priority is to provide simple directional information with event promotions. The amount and detail of directional information will depend, in part, on the anticipated visitor profile (local population or visitors from outside the area). Billboards along major routes explaining which exits to use may be useful. Signs directing visitors to parking areas will need to take into account VDOT, county, city, and NPS regulations regarding placement, size, and layout. Maintaining a design theme for event information will make signs easier to identify.

Bus: Signs on shuttle buses need to be clearly marked indicating to which corresponding park and ride lot or location the bus will be going. Multiple shuttle routes create the potential for confusion.

Bus Stops: The design and number of bus stop signs will need to be placed to identify pick-up and drop-off shuttle bus locations. Depending on the shuttle service complexity and estimated loading/unloading time, separate bus stops for each shuttle route may be desirable. Thus, bus stop signs will need to clearly identify which stop corresponds with which bus route.

Park and Ride Lots: Signage directing visitors to Park and Ride lots will need to be given special consideration. Purchasing billboard space along major corridors may be an opportunity for directing visitors to park and ride locations. It may be difficult to get visitors to use the park and ride lots if on-site event parking is available. Planners should consider the implications of allowing on-site visitor parking and determine if and what incentives may be necessary to encourage park and ride usage.

Static versus Real Time: Event organizers should consider what, if any, Intelligent Transportation Systems (ITS) will be in place or available that can provide real-time data for visitors. Automated signs, either fixed or portable, may be useful for announcing when parking lots are full and where parking is available. Such signs can also announce times for shuttle buses or provide other useful information.

Pedestrian

Pedestrian transportation in and around the event requires as much planning as getting visitors to the event. Once visitors get out of parked cars or off shuttle buses, visual cues via paths, symbols, or signs should make it clear where to go next. Furthermore, pedestrian paths should be adequate to serve the event population and the surface should be appropriate if the weather is less than ideal. Mitigation measures should be in place for identified tripping hazards along pedestrian paths. Special consideration should be given to shuttle bus stop areas, where there may be conflicts with pedestrians and those waiting for buses.

Minimize Pedestrian/Vehicle Conflicts: Where pedestrian and vehicle conflicts are likely, appropriate signage and/or markings should indicate who has the right-of-way. Parking lots can be particularly problematic. Bus stop areas should be designed to discourage pedestrians from walking in front of buses.

Access for Disabled Persons: Planning for persons with disabilities should not be overlooked. Accessibility is particularly important if a significant senior population is anticipated to attend, if parking or bus stops are far from the event site, or if the event pathways are not conducive to accommodating persons in wheelchairs.

Accessible Vehicles: The bus fleet availability will dictate what vehicle accommodations can be offered. Low-floor buses likely provide the most convenient and accessible vehicle available. Buses with lifts require much more time for loading and unloading persons using wheelchairs. If accessible buses are not available, wheelchair accessible vans should be available.

Adequate Parking: Using disabled parking guidelines, the most convenient on-site parking spaces should be reserved for persons with disabilities. Depending on the type of event, additional handicap spaces may be desirable. Handicap parking should also be available at park and ride lots.

Eliminate Physical Barriers: All aspects of the trip, from the park and ride lot or parking lot to the event and related facilities (e.g., restrooms), need to be considered from the perspective of a person with a disability. Barriers need to be removed or other accommodations provided if removing the barrier is not an option.

Communications

Maintaining communication between transportation staff and event organizers will be critical for making adjustments resulting from unforeseen circumstances.

Establish Communications Hierarchy/Channels: Communication between appropriate personnel is necessary. A communications hierarchy will need to be established in order that those with the authority to make decisions are in contact with those who can act on those decisions. Creating a flow chart establishing who needs to be in communication with whom will be useful for designating the communication hierarchy.

Radio/Cellular: Currently, there are a wide variety of communication technologies available. Several questions should be asked for selecting communication equipment. Given the communications flowchart, how complex will communication transactions be? What equipment is already available for users (e.g., bus radios)? What are the options available and how do the costs compare for each option?

Bus to Bus: Communication between bus drivers is important to ensure timely service between park and ride lots and event sites. The more complex the shuttle service, the more likely the potential for an unforeseen circumstance requiring communication with a dispatcher and other drivers. Using vehicles from the same transit system increases the likelihood that radio systems will be compatible. When selecting vehicles, communication system compatibility should be considered.

Dispatcher to Bus and Field Staff: Funneling all communications through a dispatcher will eliminate potential confusion and communication “clutter.” A dispatcher will also be in a better position to keep track of all buses and field staff.

Field Staff to Buses: It may be beneficial for field staff and bus drivers to have direct communication with each other. However, if a dispatcher is in place, these communications will likely go through the dispatcher.

Event Communications: Communication between all event functions is important. Event organizers will need to determine how to ensure that the transportation operations and event operations remain in contact in order to respond quickly and effectively to event transportation needs.

Emergency Access: An emergency element should be included in the plan that addresses who is in charge of contacting emergency response personnel. If a dispatcher is used, they will likely be responsible for contacting emergency response. If a dispatcher is not available, whoever is on the scene should contact emergency response personnel and then inform event organizers of that fact.

Public Information Plan

Providing information to the public will be critical to the success of the event. A public information component should be integrated into the event’s marketing plan. Information to the public will need to be clear and concise. The goal of the public information plan is to ensure that visitors know exactly where they need to go and what they can

expect when they get there. Visitor travel routes, transportation modes, and trip origins will need to be considered for determining how and where to provide visitor transportation information. Furthermore the demographic profile of visitors should be considered in order to anticipate specialized information needs such as disabled access.

Prior to Event: All marketing information should provide basic transportation information such as where to park and when and where shuttle services will be available.

At Event: Event signage and staff should provide clear and simple instructions for visitors. Event staff should be able to answer basic visitor transportation questions.

Staffing

Several transportation staffing issues will need to be considered. Organizers will need to determine what personnel will be needed for what jobs and at what times. Work schedules will need to be drawn up that allow adequate breaks, etc. Schedules will likely be influenced by whether paid staff or volunteers are used. It may be helpful to identify staff needs by type, time, and function on a map.

Volunteers versus Paid: Event organizers will need to determine if they can rely on volunteers or if paid staff will be needed. It may be determined that volunteers will be able to staff some positions, while it may be more beneficial to hire workers for more specialized work (e.g., bus drivers, dispatchers). Volunteer staff will likely require more scheduling flexibility and greater attention to making the work an enjoyable experience for volunteers. Event organizers should identify organizations that have a history of providing volunteers (e.g., community group, benevolent societies, etc.).

Field Staff: Roles and responsibilities for field staff need to be identified. Field staff includes parking lot attendants, information personnel (i.e., hosts), security guards, etc. The role of field staff is to assist and direct visitors with getting to event destinations as easily and effortlessly as possible. With this role in mind, the need and locations of staff will need to be identified. These positions may be good opportunities to use volunteers. Obviously, if a readily available source of volunteers can be identified, costs will be reduced and more staff can be used to ensure a more pleasant visitor experience. However, additional efforts will be required to ensure that the experience is pleasant for volunteers.

Operators (e.g., Drivers): The number of bus drivers will depend on how many shuttle routes are planned and the desired headways. Depending on the nature of the events, peak times will have to be calculated to ensure that demand does not overwhelm supply, forcing visitors to wait an inordinately long time. The plan should calculate peak time trip estimates and determine how many drivers will be needed to serve peak times. Reasonable break times for drivers will also need to be calculated into the driver requirement equation.

Communications/Dispatch: Depending on the complexity of transportation operations, a communications and/or transit dispatcher may be necessary. This person(s) will be responsible coordinating communications, transit services, motor pool, and other transportation functions.

Management/Supervisor: Each transportation function (e.g., parking, transit, motor pool, etc.) will need a manager/supervisor to communicate with event organizers/transportation coordinator. However, manager/supervisor roles could be combined and provided by fewer people.

Training

Providing staff with the knowledge and skills they need to do their jobs is essential. A designated training time will need to be organized. Training may be as simple as meeting prior to the event to discuss duties and responsibilities, provide general information that staff can provide to visitors, and allow them to ask any questions. Other staff may require specialized training on radio use or other equipment. All staff positions will require some degree of training that will need to be planned in advance.

Traffic Control

Given the estimations of the number of visitors, peak travel times, average vehicle occupancies, and transportation mode, traffic projections will need to be created. The plan should include traffic mitigation measures for anticipated and/or potential traffic problems. The traffic control portion of the plan requires coordination with state and local departments of transportation, traffic enforcement officials, and emergency services.

Security

Safety and Security issues should be addressed. Areas where there are plenty of people are generally self-enforcing environments. However, a security presence may still be necessary. Areas such as Park and Ride lots, parking lots, isolated pathways, etc., will need to be assessed for security issues.

Emergencies

The communications system should have a plan for contacting emergency services. The Planning committee should include representatives from emergency services and prepare an emergency component to the transportation plan. At a minimum, the police department, fire department, and medical/ambulance services should provide input related to emergency response.

Contingency Plan

It is impossible to anticipate all problems that can be encountered during an event. However, contingency plans should be in place for the most probable event disruptions. For outdoor events, weather poses the common threat. Event changes, fleet complications, and visitor behaviors are some of the other potential disruptions.

Weather: Even indoor events can be disrupted by weather. But for outdoor events, bad weather can put an end to the event if alternatives are not available. Event organizers should look at sites, parking areas, transportation corridors, waiting areas, and visitor

facilities with respect to various weather scenarios for the time of year. How precipitation, wind, thunderstorms, and above-/below-normal temperatures will affect visitors should be considered.

- Plans for addressing these situations should be assessed and preparations made depending on the likelihood of the event. Marketing materials should include information on what to expect in case of bad weather. For example, if the event is to take place “rain or shine,” visitors will know to prepare accordingly. If the event is to be postponed in the case of rain, directions need to be provided as to where get this information.

Access roads, parking lots, pedestrian paths, waiting areas, and event sites should be assessed for weather-related problems.

Change in Event/Activity Schedules: Unforeseen circumstances could lead to the cancellation, postponement, or a short delay in event activities. A plan for notifying the public of such changes should be in place.

Fleet Complications: Shuttle bus disruptions can occur for a variety of reasons including mechanical failures, traffic congestion, or human errors. Consideration should be given as to how to address bus fleet problems.

Mechanical: Access to back up buses should be available within a timely manner.

Traffic: Alternative routes should be determined if traffic congestion on primary routes is likely. If congestion is suspected to disrupt shuttle service timing, it may be determined that having additional buses and drivers available to add to the shuttle mix may be desirable.

Human Error: Other factors, including human errors should be assessed and a plan for addressing them in place.

Unanticipated Visitor Behavior: All aspects of the event should be considered from the visitor’s perspective. What may seem obvious to event organizers may be confusing or misleading to visitors. The event may attract many visitors unfamiliar with the area or unsure of what to expect that may lead them to behave in ways unanticipated by event organizers. For example, event organizers may assume the people parking will go to another parking lot if the closest one is full. However, visitors may simply start parking on the street or in non-designated areas. Planners will need to examine visitor behavior assumptions.

Conclusion

Planning is essential to ensure that the event experience of those attending is enjoyable. Transportation to and from the event is part of that experience. This document provides a framework for planning the transportation operations that will affect the event experience.

7.0 Traffic Conditions

The recommendations presented in Section 1.0 are based on an analysis of current traffic conditions in the Historic Triangle, supplemented by estimates of future conditions. Future conditions were evaluated with and without consideration of specific Jamestown 2007 events. Data for these analyses were obtained from traffic counts provided by James City County and the Virginia Department of Transportation, and travel model forecasts provided by the Hampton Roads Planning District Commission. Highway Capacity Manual analyses of key roadways and one intersection leading to the Settlement and Island were conducted to ascertain the traffic impacts of major, mid-sized, and small events, and to develop approaches to mitigate those impacts. The key findings of this analysis are:

1. The Jamestown 2007 commemorative events should not cause major vehicular delays on major roadways (I-64, U.S. Route 60, SR143, SR142, SR199) leading to and through the Historic Triangle area.
2. There are significant capacity constraints on roadways leading to and within the immediate vicinity of the Jamestown Settlement and the Island. Depending on the location, timing, and magnitude of the commemorative events for 2007, these constraints will limit the number of visitors that can arrive by automobile.
3. Sufficient roadway capacity appears to exist for events attracting 1,000 to 5,000 persons, if some additional parking can be secured. If additional parking spaces cannot be secured for events attracting more than about 4,000 persons, measures to raise bus utilization beyond existing levels must be employed.
4. If events are structured to occur with a definite start and end time, existing roadway capacities will limit the number of cars that can be accommodated at any one time. The planning-level analysis performed puts that number at around 13,000 to 15,000 persons.
5. Available parking is scattered throughout the Island and the Settlement areas. When on-site parking is permitted, a system of shuttle buses will be needed to transport visitors between their automobiles and the venues.
6. Traffic on Jamestown Road (SR31) and Route 5 should be managed to allow local traffic to circulate as freely as possible.
7. Transit must be a primary means of conveyance to the Island and Settlement if mid-sized to major events are to be served without major delays and congestion.

The following recommendations for additional analysis are offered:

1. Conduct an analysis of maximum traffic capacity at the Island and Settlement for events without a definite start and end time;
2. Conduct a more detailed analysis of U.S. 60/Lafayette Street traffic operations, to ascertain what types of actions (such as better signal coordination) would improve traffic operations and facilitate shuttle bus movements on those facilities. Particular emphasis should be given to the roadway sections between Governor Berkley Road to the north and Route 199 to the south; and
3. Conduct a detailed operations assessment of venue access and egress at the Island and Settlement, to determine the feasibility of shuttling visitors around and between the parking lots.

This section presents an analysis of traffic conditions and identifies options for mitigating the traffic impacts of events of various sizes. The first section provides a general discussion of the relationship between levels of visitation and traffic impacts. Subsequent sections discuss recent traffic trends and future traffic conditions. Finally, the last section presents a more detailed discussion of the traffic impacts of the events, and how those impacts might be mitigated through the use of traffic management measures.

■ 7.1 Background

The timing, location, and magnitude of the various events that are proposed to take place during 2007 will not be known with certainty until 2002. However, a general description of the 2007 commemorative events has been developed, and an illustration of representative traffic impacts is possible.

Table 7.1 on the following page illustrates the parking and transit requirements associated with variations in peak daily visitation and transit utilization. This illustration assumes various levels of peak daily visitation ranging from a low of 1,000 persons to a high of 40,000 persons, arrayed against assumed transit utilization rates ranging from a low of zero percent to a high of 75 percent.

Table 7.1 illustrates the number of automobiles and the attendant parking demands they generate, assuming an average vehicle occupancy of 3.0 persons per car. Also shown is the number of persons who would need to be transported by transit vehicle for each combination of event size and transit utilization.

At the low end of assumed transit utilization of zero percent, a crowd of 5,000 persons would generate a need for approximately 1,670 on-site parking spaces. Conversely, at the high-end assumed value of transit utilization of 75 percent, the same 5,000 persons would only need approximately 420 on-site parking spaces.

Table 7.1 Conceptual Event Traffic Impact – Parking and Transit Requirements for Various Mode Shares

Total Event Attendance	Transit = 0 percent		Transit = 10 percent		Transit = 25 percent		Transit = 50 percent		Transit = 75 percent	
	Parked Autos*	Transit Persons	Parked Autos*	Transit Persons	Parked Autos*	Transit Persons	Parked Autos*	Transit Persons	Parked Autos*	Transit Persons
1,000	330	-	300	100	250	250	170	500	80	750
2,500	830	-	750	250	630	625	420	1,250	210	1,875
5,000	1,670	-	1,500	500	1,250	1,250	830	2,500	420	3,750
10,000	3,330	-	3,000	1,000	2,500	2,500	1,670	5,000	830	7,500
15,000	5,000	-	4,500	1,500	3,750	3,750	2,500	7,500	1,250	11,250
20,000	6,670	-	6,000	2,000	5,000	5,000	3,330	10,000	1,670	15,000
30,000	10,000	-	9,000	3,000	7,500	7,500	5,000	15,000	2,500	22,500
40,000	13,330	-	12,000	4,000	10,000	10,000	6,670	20,000	3,330	30,000

* Assumed Auto Occupancy = 3.0 persons per vehicle.

For those events with relatively modest peak visitation levels, on the order of 1,000 persons, it should be possible to accommodate the associated peak-period parking demands with a relatively modest need for any transit service. However, for those events with anticipated peak visitation levels of 4,000 or more, a significantly increased transit mode share will likely be required in order not to overwhelm a specific venue's parking supply. For major events, e.g., those attracting between 20,000 and 40,000 visitors, it would appear that a very high rate of transit utilization (75 percent or greater) may be required in order to moderate peak parking demands to acceptable levels.

■ 7.2 Analysis of Current Conditions

The Historic Triangle Area experienced significant traffic growth in the early to late 1990s. This growth reflects residential and commercial development that was planned, approved, and built during this period. Overall regional growth, reflecting improving economic conditions during that time period, attracted additional trips through the area, which also contributed to this growth in traffic.

Changes in average daily traffic volumes derived from VDOT traffic counts taken between 1991 and 1997 are depicted in Figure 7.1 below. Traffic on sections of I-64, SR5, SR199, and SR31/Jamestown Road grew by more than 25 percent between 1991 and 1997. The greatest traffic growth occurred on sections of I-64 near the south side of the SR199 interchange, and SR199 itself. The traffic volumes on these particular roadway sections grew by more than 40 percent between 1991 and 1997. Traffic on SR143 near the I-64 interchange decreased during that period, possibly indicating that travelers sought out other, alternative routes, such as SR199, for travel from and to the Historic Triangle area.

Table 7.2 presents percentage changes in traffic volumes on selected roadway segments in James City County, between 1998 and 2000. These traffic data are collected during the month of April each year and so are less influenced by changes in visitor travel than are traffic counts taken in late spring or summer. Most of these segments show a decrease in traffic during this period of time. What these figures demonstrate is the significant impact of the new highway capacity provided by the completion of SR199 and parts of the new Monticello Avenue (alternate Route 5) extension. These higher speed, higher capacity facilities provide preferable routing alternatives to parallel routes such as Centerville Road, and have diverted traffic away from them. Virginia Department of Transportation Traffic Count information shows that daily traffic on SR199 grew by 20 percent between 1997 and 1999. With the completion of the last section SR199, the facility will increasingly serve as a mini "beltway," providing good access between I-64, Jamestown and Williamsburg.

Table 7.2 Percentage Growth in Average Daily Traffic on Selected Roads - James City County, 1998-2000

Road	From	To	1998	2000	Percent Change in Traffic
Richmond Road	Olde Towne Road	Airport Road	28,450	24,870	-13%
	Lightfoot Road	Olde Towne Road	16,120	20,675	28%
Centerville Road	News Road	John Tyler Highway	5,160	3,350	-35%
	Longhill Road	News Road	4,070	4,640	14%
Longhill Road (612)	Olde Towne Road	Route 199	11,770	15,500	32%
	Route 199	Ironbound Road	11,710	10,020	-14%
Jamestown Road	Route 199	Winston Drive	15,610	15,890	2%
	Ironbound Road	Sandy Bay Road	9,220	7,860	-15%
	Sandy Bay Road	4-H Club Road	8,290	8,170	-1%
Ironbound Road (615)	Monticello Avenue	Watford Lane	20,440	17,350	-53%
John Tyler Highway (5)	Brickbat Road	Centerville Road	9,110	5,950	-35%
	Indigo Park	Stanley Drive	13,500	15,090	12%

Source: James City County Planning Division.

Field observations reveal a number of locations where significant delays and queuing occur on a regular basis. The intersection of SR199 and Kingsmill Road, and the U.S. 60/SR199 interchange north of Busch Gardens are two such locations; however the Commonwealth's Capital Improvement Program has programmed resources to add capacity to both locations. The SR199/Mounts Bay Road intersection will be improved as part of the expansion of SR199 to four lanes east of the Colonial Parkway. VDOT is also completing a new interchange at Grove Road (Exit 243), which will divert traffic bound for Busch Gardens away from the SR199 interchange (Exit 242), and where significant delays can occur in the summer months.

Significant delays have also been observed at the SR199/SR31 intersection, especially on the northbound and southbound approaches in the early and late afternoon hours. This location is probably the most significant source of potential delays as regards the commemorative events, because SR31 is the most direct route to Jamestown Island from Williamsburg and the current intersection configuration cannot support a large increase of visitor traffic without creating a substantial amount of congestion.

Additional analyses of the SR199/SR31 intersection were conducted as part of this project, because of this intersection's significance as an important link in the local transportation system serving Jamestown 2007. In February 2001, the Virginia Department of Transportation collected peak-hour turning movement counts at the SR199/SR31 intersection. These traffic counts were used in a planning-level intersection capacity and delay analysis using Highway Capacity Manual techniques. The Highway Capacity Manual

provides a uniform and widely accepted set of analysis methods for evaluating capacity and delay on individual components of highway transportation systems.

The results (Table 7.3) show that there are moderate levels of intersection congestion, with the highest levels appearing in the afternoon/evening peak hour. In this analysis, a level of service (LOS) “F” corresponds to more than 80 seconds of delay per vehicle. While this analysis indicates that traffic conditions may be acceptable, it must be noted that the data were collected during the month of February, when traffic flows are below annual averages, and quite a bit lower than during the June to August peaks. These traffic counts should be regarded as a very conservative base from which to estimate future traffic volumes. It should also be noted that in an intersection planning-level analysis, reasonable signal cycles and signal phases, rather than the actual cycles and phases, are used. The Virginia Department of Transportation did conduct a signal timing study of the SR199/SR31 intersection in 2000. That study found that, under ideal conditions, and through the coordination of traffic signals on SR199 from Route 700 to Routes 31 and 5, intersection levels of service could be improved to “C” (30 seconds of delay) in the morning and LOS D (42 seconds of delay) in the evening.

Table 7.3 February 2001 Capacity Analysis of SR31/SR199 Intersection

	Average Peak-Hour Delay per Vehicle	Overall Level of Service (LOS)
AM Peak	47 seconds	D
Mid Day	45 seconds	D
PM Peak	56 seconds	E

■ 7.3 Future Traffic Conditions

Levels of traffic in the Historic Triangle area are expected to increase over time, because of continued development and regional economic growth. As part of its Congestion Management System (CMS) analysis, the Hampton Roads Planning District Commission generates traffic forecasts of the entire Tidewater area. While the level of analysis is coarse and limited to major facilities, these forecasts are useful for detecting the trends and direction of travel demand on an average day.

Traffic forecasts for 2006 indicate that relatively uncongested traffic conditions are likely on most major facilities in the Historic Triangle area. Table 7.4 below presents a summary of average levels of service derived from traffic forecasts produced for the air quality conformity analyses in the Hampton Roads Planning District. These forecasts show that that I-64 from New Kent County to SR199 should flow relatively freely, but that some congestion south of Newport News may be expected. During normal weekday operations, moderate congestion (LOS D), that is to say an occasional slowing of traffic, may be

encountered on portions of SR199, SR31, and the Colonial Parkway in Williamsburg. The highest levels of congestion (LOS E, denoting stop-and-go traffic) in the Jamestown/Williamsburg area are forecast to occur on SR199, between SR5 and SR31. Overall however, most roadway segments show low to moderate levels of congestion on average days.

Table 7.4 Estimated 2006 Levels of Service on Selected Roadway Segments

Roadway	From	To	2006 ADT*	LOS**	LOS**
				2006 AM	2006 PM
Colonial Parkway	Jamestown Island	SR199	4,100	B	C
	SR199	SR143	4,900	C	D
	SR143	SR199	4,300	C	C
	SR199	Yorktown	4,300	C	C
SR199	I-64	SR5	25,900	B	B/A
	SR5	SR31	29,500	E	E
	SR31	U.S. 60	25,900	D	D
	U.S. 60	I-64	30,700	B	B
SR31 (Jamestown Road)	Jamestown Settlement	Ironbound Road	10,100	D	D
	Oxford Road	SR199	9,100	D	D
SR5 (John Tyler Road)	Centerville Road	Ironbound Road	8,700	C	C
	Ironbound Road	SR5	10,200	B	B
U.S. 60	SR614	SR199	20,500	B	B
	SR199	Monticello Avenue	24,330	B/C	B/D
	Monticello Avenue	Bypass Road	24,700	C	C
I-64	New Kent County	SR143	52,600	B/C	C
	SR143	SR199	53,700	B	C
	SR199	Grove Boulevard	55,500	C	C
	Grove Boulevard	SR143/Newport	53,900	C	C
	Newport News	Hampton	90,850	D/E	D/E/F
Monticello Avenue	Ironbound Road	U.S. 60	12,650	D/C	D/C
Longhill Road	SR614	Williamsburg West Drive	11,300	C	B
	Williamsburg West Drive	Eastern State Hospital	12,400	C	C
Ironbound Road	U.S. 60	Monticello Avenue	12,550	C	C
	Monticello Avenue	SR5	11,900	C	C

Sources: HRPDC, Draft 2001 Congestion Management System Document, and VDOT.

* ADT = Average Daily Traffic.

** HRPDC defines Levels of Service (LOS) as follows:

LOS A-C = No Congestion.

LOS D = Moderate Congestion.

LOS E/F = Heavy/Severe Congestion.

Table 7.5 below illustrates the potential issues associated with using SR31/Jamestown Road as an access route to the Jamestown Settlement and the Island. Assuming a three percent annual traffic growth rate for the eastbound and westbound approaches to SR31/SR199, intersection delay is likely to reach levels at or near LOS F by 2007. This analysis includes the “preferred” alternative for SR199/SR31, which calls for an additional right-turn lane in the eastbound direction, and an additional left-turn lane in the westbound direction. Alternatives for intersection improvements are currently being considered by local officials and VDOT; a decision on a final design has not yet been made.

Table 7.5 Capacity Analysis of SR31/SR199 Intersection, February 2007

	Average Peak-Hour Delay per Vehicle	Overall Level of Service (LOS)
AM Peak	88.0 seconds	F
Mid Day	55.3 seconds	E
PM Peak	72.7 seconds	E

Transportation Impacts of Jamestown 2007 Events

The critical links in the Jamestown 2007 transportation system are the roadways leading directly to the Island and the Settlement. All trips to the commemorative events must arrive via the Colonial Parkway or Jamestown Road (SR31) through SR5, SR199, Greensprings Road, or Ironbound/Sandy Bay Road. With the exception of the Colonial Parkway and SR199, all these roadways are two-lane facilities, with occasional passing lanes and variable shoulder widths.

Using Highway Capacity Manual techniques, capacity, and delay estimates of traffic conditions for 2007 were developed for these critical roadway segments, under a variety of assumptions. The analysis includes events assumed to attract 1,000, 5,000, 10,000, 15,000, and 30,000 visitors. The purposes of the analysis are:

- To develop an understanding of the point at which traffic management actions are necessary, given events of various sizes; and
- To develop an understanding of appropriate traffic management actions, given the needs generated by various events.

Table 7.6 below presents the results of the analysis for each scenario. The table presents the following information:

- **Visitors:** The number of visitors arriving that day for the event;
- **Traffic Management Emphasis:** What strategy, if any, should be employed to mitigate adverse traffic impacts;

- **Event Auto/transit share:** Percentage of persons traveling by automobile/transit to the commemoration;
- **Route 31 traffic share:** Percentage of traffic to the commemorative venue arriving by SR31 (via the SR199/SR31 intersection);
- **Additional parking needs:** Parking space needs generated by the event beyond the 1,200 spaces anticipated for 2007;
- **Additional bus needs:** Number of buses needed to serve bus demands under a “transit emphasis” scenario; and
- **Event peak-hour conditions:** The remainder of each table presents 2007 estimated peak-hour volumes and levels of service for each the key roadways leading to the commemorative venues at the Island or Settlement. A level of service F denotes stop-and-go traffic, and “unacceptable” traffic delays and queuing.

The main assumptions used in the analysis are shown in the table below. *One critical assumption made here is that parking resources will be shared among the Jamestown 2007 partners for all events.*

Table 7.6 Starting Assumptions Used in Jamestown 2007 Traffic Analysis

Variable	Assumption
Temporal Distribution	60 percent of traffic occurs during the peak hour of travel
Mode of arrival	87 percent of visitors arrive by car
Auto occupancy	Three people per vehicle
Background Traffic	10 percent of daily background traffic occurs the hour before the event
Traffic Distribution arrivals	73 percent of all visitors arrive via SR31 23 percent arrive by the Colonial Parkway
Parking	1,200 spaces will be available for use at Jamestown Island, Neck of Land, the Glasshouse, and the Jamestown Settlement
Event	Event is similar to a sporting/entertainment event (i.e., all visitors wish to leave within an hour of the conclusion of the event)
Traffic Volumes	Two percent growth rate is applied to 2000 traffic counts (although slightly negative rates of growth are shown in the traffic counts for these areas, small rates of growth will capture impacts of residential growth in the areas)

Baseline Conditions. Table 7.7 below shows the impacts of background traffic growth on the key “gateway roads,” without any additional traffic generated by any events. The analysis of baseline 2007 levels of service at these key roadways indicates that none operates below LOS E, which denotes steadily moving, but near bumper-to-bumper conditions.

Table 7.7 Baseline Traffic Conditions

Gateway Road	2000	LOS	2007 Base	LOS
VA Route 31 (S of 199)	10,920	E	12,540	E
VA Route 31 (at JYF)	8,170	D	9,390	D
VA Route 614	4,490	C	5,160	D
VA Route 615/681	5,580	D	6,410	D
Colonial Parkway	3,300	B	3,790	B

Impacts of an increase in Settlement visitation on an average day. The Jamestown Yorktown Foundation’s current planning estimates show an increase of 500,000 visitors between 2000 and 2007. To illustrate the traffic impacts of a general increase in visitation across the year, that estimate was translated into peak-hour vehicles, as shown in Table 7.8 below. On an average day (one without a significant event scheduled), 127 additional vehicles are likely to be attracted to the Settlement. No significant congestion is likely to occur as a result of this increase in visitation, and the impacts would be somewhat less than those estimated for a 1,000-person event, as shown in Table 7.9. No additional parking would be required.

Table 7.8 Traffic Generated by Average Increases in Visitation at Jamestown Settlement

Calculation	Result	Comment
Annual Increase in Visitation (2007)	500,000	Jamestown-Yorktown Foundation
Visitation April to August	300,000	60 percent: Virginia Tourism Corporation, Jamestown Settlement Survey
Weekday Visitation	1,750	51 percent of visitors make weekend-only visit (VTC); 120 days between April and August
Additional Peak-Hour Visitors	438	25 percent of bus visits occur in the peak hour (Jamestown-Yorktown Foundation)
<i>Additional Peak-Hour Auto Equivalents</i>	127	45 visitors arrive by bus; three passengers per automobile (JYF and National Park Service)

Impacts of 1,000- and 5,000-Person Events. These scenarios (refer to Scenarios B and C in Table 7.9) present the probable traffic impacts of one of the many smaller events that would occur throughout 2007. Levels of service will not degrade significantly enough to warrant large-scale traffic management measures, if sufficient parking exists. However, parking constraints will limit capacity at around 4,000 visitors, if the percentage of arrivals by bus remains at current levels. Scenario B (5,000 persons) generates a demand for an additional 250 parking spaces beyond anticipated levels. If additional parking spaces cannot be secured for events attracting more than 4,000 persons, measures to raise bus utilization beyond existing levels must be employed.

Impacts of 10,000-Person Events (Scenario D). Scenario D represents a mid-sized event that might occur on a monthly basis. Under baseline assumptions described previously, traffic generated by such an event more than doubles traffic on SR31, resulting in LOS F just south of the intersection with SR199 and near the Settlement. Parking requirements are also increased by 1,700 spaces.

Impacts of 10,000-Person Events (Scenario E). If visitors can be guided around SR31 as much as possible, high levels of congestion can be avoided. Scenario E assumes most traffic has been routed to the Colonial Parkway, Ironbound/Sandy Bay Road and Greensprings Road. This results in a reduction in traffic on SR31 near the SR199 intersection, and an increase on other facilities. The level of service is E for SR31, SR615, and the Parkway. Visitor guidance and routing can be achieved through an aggressive traveler information campaign and aggressive traffic control, as described in the recommendations section of this report. This scenario also creates a demand for an additional 1,700 parking spaces.

Impacts of 15,000-Person Events (Scenario F). Scenario F assumes that an aggressive route guidance system is in place to mitigate the impacts of 15,000 visitors. Under this scenario, all gateway roads operate at LOS E or worse. SR31 near the Settlement operates at LOS F, because of the confluence of traffic originating from Ironbound and Greensprings Road, as well as traffic from the intersection with SR199 to the north. More than 3,000 additional parking spaces are required to meet the demands generated by these visitors.

Impacts of 15,000-Person Events (Scenario G). A high-quality shuttle bus system, one whose use would be required of all visitors except staff, VIPs, and emergency personnel, could accommodate these major events while reducing delays far below those estimated by an automobile-only scenario. Scenario G shows that acceptable levels of service can be achieved with a mix of transit and a small percentage of auto access to the Settlement/Island venues.

Impacts of 30,000-Person Events (Scenario H). Scenario H illustrates the impacts of a full-scale shuttle bus system, which transports all visitors (with the exceptions noted above) to the venue. As noted below, the shuttle system brings visitors to the venue via the Colonial Parkway and so avoids creating traffic congestion on SR31. Close to 700 additional vehicles (passenger car equivalents) travel on the Parkway in the peak hour. However, traffic increases are minimal and acceptable levels of service result there and on all gateway roads.

Table 7.9 Summary of Commemorative Event Transportation Analysis

Visitors	Base (Scenario A)	1,000 (Scenario B)	5,000 (Scenario C)	10,000 (Scenario D)	10,000 (Scenario E)	15,000 (Scenario F)	15,000 (Scenario G)	30,000 (Scenario H)
Traffic Management Emphasis	None	None	None	None	Route Guidance	Route Guidance	Max Transit Emphasis	Max Transit Emphasis
Event Auto Share	87%	87%	87%	87%	87%	87%	10%	0%
Event Transit Share	13%	13%	13%	13%	13%	13%	90%	100%
Route 31 Traffic Share	73%	73%	73%	73%	10%	10%	10%	0%
Additional Parking Needs	0	0	250	1,700	1,700	3,150	0	0
Additional Peak Bus Needs	0	0	0	0	0	0	130	250
Peak Hour Traffic and Estimated Level of Service								
VA Route 31 (S of 199)	1,250 E	1,380 E	1,900 E	2,540 F	1,450 E	1,540 E	1,310 E	1,250 E
VA Route 31 (at JYF)	940 D	1,080 E	1,620 E	2,300 F	1,830 E	2,270 F	1,120 E	940 D
VA Route 614	520 D	520 D	530 D	530 D	860 D	1,040 E	580 D	520 D
VA Route 615/681	640 D	640 D	650 D	660 D	950 E	1,110 E	700 D	640 D
Colonial Parkway	380 B	420 B	600 C	810 D	1,280 E	1,730 E	830 D	1,050 D

As noted below, an operations-level analysis would be required to fully analyze the best configuration for pick-up and drop-off locations, and to understand to what extent buses and automobiles can circulate in the same the same general location.

Transit Needs Assessment. The traffic analysis for the major events included an assessment of transit needs for an aggressive shuttle system. All these bus routes operate as nonstop service along the Colonial Parkway after they have picked up their passengers. The assumptions used in assessing bus requirements for this system are shown in Table 7.11 below. For a 30,000-person event, 250 buses in the peak are required. For a 15,000-person event, 130 buses are required. A breakout of buses by route is shown in Table 7.10. For the bus analysis, eight routes were assumed:

1. CW/Jamestown Shuttle: Collects passengers at the Colonial Williamsburg Visitor Center (Inbound time: 19 minutes);
2. Hotel Shuttle North: Collects passengers along U.S. 60 west of Bypass Road and operates nonstop service (Inbound time: 40 minutes);
3. Hotel Shuttle North: Collects passengers along U.S. 60 east of Bypass Road (Inbound time: 36 minutes);
4. Hotel Shuttle Bypass Road: Collects passengers along Bypass Road (Inbound time: 37 minutes);
5. Satellite Park and Ride Shuttle North: Collects passengers from a park and ride lot located near the interchange of I-64 and Lightfoot Road (Inbound time: 28 minutes); and
6. Satellite Park and Ride Shuttle South: Collects passengers from a park and ride lot located near the interchange of I-64 and SR199 (Inbound time: 26 minutes).

Additionally, two other routes were considered:

7. Train Station Shuttle: Collects passengers from AMTRAK station according to train schedule; and
8. Regional Bus Service: Express service from Richmond and Newport News/Hampton Roads to Jamestown.

Other assumptions include:

- 60 percent of all visitors arrive the day of the event. 35 percent of them arrive via I-64 on the north end, and 45 percent arrive via I-64 at the south end. The remainder is distributed across SR5 and other major arterial facilities in the area.
- 40 percent of all visitors arrive a day or more before the event and stay at a hotel on Route 60. 30 percent of them use one of the shuttle bus services.

These assumptions are partly based on a review of visitation surveys for the Historic Triangle, conducted by the Virginia Transportation Corporation.

Table 7.10 Estimated Bus Requirements for Major Events

Route	No. of Peak Buses (15,000-Person Event)	No. of Peak Buses (30,000-Person Event)
Hotel Corridor North	17	35
Hotel Corridor South	15	30
Hotel Corridor Bypass Road	15	30
Rt. 199 Connector North	25	55
Rt. 199 Connector South	30	65
CW Connector	10	15
Regional Bus Services	10	12
Transportation Center Shuttle	8	8
Total	130	250

Table 7.11 Assumptions Used in Transit Analysis

Item	Description	Assumption	Units
Bus auto equivalents	Equivalent auto capacity of one bus	3	
Passengers/bus	Number passengers on each bus at venue	45	
Peak period	Total duration of visitors arriving	180	min
Dwell time/passenger	Time required to board one passenger	3	sec
Capacity/bus	Maximum passengers occupying one bus	45	
Pass. walk/wait time	Maximum wait for bus to arrive	5	min
Pass. speed	Walking speed	3	mph
Bus stop distance	Average distance between bus stops on U.S. 60	0.3	miles

■ 7.4 Conclusions

This section has presented the results of an analysis of current and future traffic conditions in the Historic Triangle. A summary is presented below:

- **General increases in visitation in 2007.** Modest impacts; adequate parking. Traveler information and route guidance would benefit first-time visitors.
- **1,000 visitors.** Modest impacts; adequate parking. Traveler information and route guidance would benefit first-time visitors.
- **5,000 visitors.** Moderate impacts; need for 250 additional parking spaces. Traveler information and route guidance would benefit first-time visitors.
- **10,000 visitors.** Significant impacts without aggressive traffic management actions; Re-routing visitor traffic away from SR31/SR199 would reduce delay considerably. Need for 1,700 additional parking spaces.
- **15,000 visitors.** Significant impacts even with aggressive route guidance; transit emphasis will reduce delay considerably. A small number of vehicles may be allowed access to the Island/Settlement, but further analysis is needed to ascertain the implications of high volumes of buses and automobiles operating in a relatively constrained area. Approximately 130 buses would be needed to serve peak demands. Routing the buses along the Colonial Parkway will effectively segregate visitor traffic from local traffic.
- **30,000 visitors.** Significant impacts without aggressive transit emphasis. Vehicular access to the Island/Settlement should be limited to VIPs, staff, and emergency personnel. Routing the buses along the Colonial Parkway will effectively segregate visitor traffic from local traffic. Roughly 250 buses would be needed to serve peak demands.

Appendix A

■ Jamestown 2007 Steering Committee Members

Steering Committee

- Stuart W. Connock, *Chair*
- Frank B. Atkinson, *Vice Chair*
- Wayne Adkins
- Hunter B. Andrews
- L. Ray Ashworth
- Wilbert Bryant
- Linwood W. Custalow
- Rosalyn R. Dance
- H. Benson Dendy III
- V. Earl Dickinson
- Barry E. DuVal
- Mark L. Earley
- Suzanne O. Flippo
- F. Alec Gould
- John H. Hager
- Robert V. Hatcher, Jr.
- William J. Howell
- Heather A. Huyck
- Calvin D. Jamison
- William M. Kelso
- Peter I. C. Knowles II
- M. Boyd Marcus, Jr.
- Martha D. Marks
- George Keith Martin
- Thomas K. Norment, Jr.
- Edgar A Toppin
- Donald W. Upson
- Rovenia Vaughan
- Alan M. Voorhees
- Shirley J. Ybarra

Honorary Members

- First Lady Roxane G. Gilmore, *Honorary Chair*

Former Governors

- George F. Allen
- Gerald L. Baliles
- A. Linwood Holton
- Charles S. Robb
- L. Douglas Wilder

Appendix B

■ Jamestown 2007 Subcommittee Members

Programs and Events

- Suzanne O. Flippo, *Chair*
- John H. Hager, *Vice Chair*
- A. Leonard Adkins
- Wayne Adkins
- Charles F. Bryan, Jr.
- Wilbert Bryant
- Margo Carlock
- Lee Chase
- Bonnie Ross Cooper
- Alexander Corbett
- Hud R. Croasdale
- Robert Cross
- Linwood W. Custalow
- Bette H. Dillehay
- Mark L. Earley
- Vernon Edenfield
- Rex Ellis
- Roxane G. Gilmore
- Caroline Goodson
- F. Alec Gould
- Joseph A. Gutierrez
- Lisa Hicks
- Heather A. Huyck
- N. Brent Kennedy
- William M. Kelso
- John W. Knapp
- Peter I. C. Knowles II
- Sheila Noll
- Trudy E. Norfleet
- James J. Owen
- David Parker
- John Raup
- Susan Tipton
- Edgar A. Toppin
- Gayle Morgan Vail
- Robert C. Vaughan
- Alex Wise, Jr.
- Nolan T. Yelich

Marketing and Finance

- Robert V. Hatcher, Jr., *Chair*
- H. Benson Dendy III, *Vice Chair*
- William Allcott
- Hunter B. Andrews
- L. Ray Ashworth
- H. Furlong Baldwin
- Betsy D. Beamer
- Sandra D. Bowen
- William Conners
- V. Earl Dickinson
- Barry E. DuVal
- Richard D. Harrison
- Calvin D. Jamison
- John S. Molster
- Linda Neal
- Thomas K. Norment, Jr.
- Richard L. Radt
- Willard Scott
- Charles W. Sydnor, Jr.
- Morton G. Thalhimer, Jr.
- D. Anderson Williams
- H. Graham Woodlief
- Jeanne Zeidler

Logistics

- Frank B. Atkinson, *Chair*
- Martha D. Marks, *Vice Chair*
- Barry W. Bass
- Richard L. Beadles
- Betsy D. Beamer
- Marvin Bradby
- Richard Campbell
- Stuart W. Connock
- Hud R. Croasdale
- Rosalyn Dance
- Philip G. Emerson
- Brad Face
- Dwight Farmer
- Stewart H. Gamage
- Meriwether German
- Dorothy Geyer
- Roxane G. Gilmore
- Bruce Goodson
- F. Alec Gould
- Robert Hershberger
- John Horne
- William J. Howell
- Heather A. Huyck
- Patti Jackson
- Elizabeth S. Kostelny
- M. Boyd Marcus, Jr.
- Robert E. Martinez
- Sheila Noll
- Trudy E. Norfleet
- John Raup
- Donald W. Upson
- Alan M. Voorhees
- John Paul Woodley, Jr.
- Shirley J. Ybarra
- Jeanne Zeidler

Appendix C

■ Membership of the Logistics Subcommittee's Local/Regional Transportation Working Group

- Norm Beatty, Director, Jamestown 2007
- Leo J. Bevon, Director, Virginia Department of Rail and Public Transportation
- Mark Carter, Planning and Zoning Manager, York County
- Mark Duncan, Colonial Williamsburg Foundation
- Michael Fox, Intergovernmental Relations, College of William and Mary
- Stewart Gamage, Vice President, College of William and Mary
- Dorothy, Geyer, Landscape Architect, Colonial National Historical Park, National Park Service
- Alex Gould, Superintendent, Colonial National Historical Park, National Park Service
- John Horne, Development Manager, James City County
- Heather A. Huyck, Jamestown 400th Project Director, National Park Service, Jamestown, Virginia
- Rob Martinez, Logistics Subcommittee, Transportation Task Force, Jamestown 2007
- Reed Nester, Planning Director, City of Williamsburg
- John Raup, Vice President, Colonial Williamsburg Foundation
- Mark D. Rickards, Senior Transit Planner, Virginia Department of Rail and Public Transportation
- Gerald W. Sears, Principal Transportation Engineer, Virginia DOT Transportation Planning Division
- Irene Shuman, Principal Transportation Engineer, Virginia DOT Transportation Planning Division
- Marvin Sowers, Planning Director, James City County
- Alan Voorhees, Board Member, APVA